**APPENDIX**

# In the Supreme Court of the United States

October Term, 1976

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No. 75-978

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E. I. DU PONT DE NEMOURS AND COMPANY, *et al.*,
*Petitioners*

v.

RUSSELL E. TRAIN, as Administrator,
Environmental Protection Agency, *et al.*,
*Respondents.*

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**On Writ Of Certiorari To The United States Court Of Appeals For The Fourth Circuit**

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**Petition for Certiorari Filed January 12, 1976**
**Certiorari Granted April 19, 1976**

# In the Supreme Court of the United States

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# INDEX

## Docket Entries and Chronological Listings of Proceedings Below



## Administrative Proceedings in the Environmental Protection Agency



*Bracketed page numbers refer to the Administrative Record as paginated by EPA.





## Judicial Proceedings

## DOCKET ENTRIES AND CHRONOLOGICAL LISTINGS OF PROCEEDINGS BELOW

### IN THE UNITED STATES DISTRICT COURT FOR THE WESTERN DISTRICT OF VIRGINIA

Civ. A. No. 74-57

| | |
|---|---|
| 4/1/74 | Complaint filed. |
| 5/13/74 | Plaintiffs' motion for separation of and expeditious determination of basic issues of statutory construction and for summary judgment, or, in the alternative, declaratory judgment on such issues. |
| 5/28/74 | Defendants' motion to dismiss, or, in the alternative, to stay the proceedings. |
| 9/27/74 | Opinion and order. |
| 10/8/74 | Plaintiffs' notice of appeal. |

### IN THE UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT

No. 74-2237 (Civil)

| | |
|---|---|
| 11/8/74 | Appeal docketed. |
| 11/12/74 | Joint stipulation and motion for consolidation with Nos. 74-1261, *etc.* |
| 11/19/74 | Order consolidating this case with Nos. 74-1261, *etc.* |
| 12/10/74 | Joint motion for consolidated oral argument in No. 74-2237 and Nos. 74-1261, *etc.* |
| 2/4/75 | Joint motion for expedited oral argument. |
| 4/22/75 | Argument. |
| 5/5/75 | Motion of Appalachian Power Co., *et al.*, to defer decision on the merits. |
| 5/20/75 | Order denying motion. |

6/11/75 Appellees' motion to file supplemental memorandum.

6/17/75 Motion granted.

6/17/75 Appellants' motion to file appellants' supplemental brief in response to appellees' supplemental memorandum.

12/30/75 Opinion and order.

**IN THE UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT**

Nos. 74-1261, 74-1290, 74-1296-1304, 74-1357, 74-1406-07, 74-1588-90, 74-1670-1, 74-1741 (Civil)

3/5/74 First petition for review.

6/7/74 Order establishing schedule for briefs.

6/27/74 Order consolidating cases into two groups, one pertaining to effluent guidelines and one pertaining to standards of performance for new sources.

7/12/74 Petitioner's motion for remand of effluent guidelines for the hydrofluoric acid subcategory.

7/17/74 Petitioner's motion for remand of standards of performance of new sources for the hydrofluoric acid subcategory.

7/31/74 Stipulation by parties.

8/6/74 Order denying petitioner's motion to remand effluent guidelines.

8/12/74 Order denying petitioner's motion to remand standards of performance.

8/16/74 Order withdrawing order denying remand.

8/27/74 Motion of National Resources Defense Council (NRDC) to file a brief amicus curiae.

8/27/74 Motion granted.



9/9/74 Motion of Chamber of Commerce of the United States to file a brief amicus curiae.

9/9/74 Motion granted.

9/13/74 Motion of Allegheny Power System, Inc., to file a brief amicus curiae.

9/30/74 Motion granted.

9/30/74 Motion of N. J. Zinc Co. to file a reply brief amicus curiae.

10/7/74 Motion granted.

10/29/74 Motion of RMI Co. to file a brief amicus curiae and to participate in oral argument.

11/15/74 Motion of RMI Co. granted as to brief amicus curiae and denied as to participation in oral argument.

12/19/74 Joint motion for consolidated oral argument.

1/29/75 Motion of American Petroleum Institute and Eleven Member Companies to file a brief amicus curiae.

2/4/75 Motion of American Petroleum Institute, *et al.*, granted.

2/4/75 Joint motion for expedited oral argument.

3/28/75 Motion of amicus curiae Allegheny Power Systems, Inc., to file a supplemental brief.

4/4/75 Motion of Allegheny Power Systems, Inc., granted.

4/10/75 Motion of amicus curiae American Petroleum Institute, *et al.*, to file a supplemental memorandum.

4/11/75 Motion granted.

4/11/75 Respondent's motion to file supplemental memorandum.

4/14/75 Motion granted.

4/14/75 Motion of American Petroleum Institute, *et al.*, to participate in oral argument.

# In the Supreme Court of the United States

October Term, 1976

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No. 75-978

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E. I. DU PONT DE NEMOURS AND COMPANY, *et al.*, *Petitioners*,

v.

RUSSELL E. TRAIN, as Administrator,
Environmental Protection Agency, *et al.*, *Respondents*.

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**Administrative Proceedings**
**in the**
**Environmental Protection Agency**

[1] **DRAFT**

## DEVELOPMENT DOCUMENT FOR EFFLUENT LIMITATIONS GUIDELINES AND STANDARDS OF PERFORMANCE

## INORGANIC CHEMICALS, ALKALI AND CHLORINE INDUSTRIES

Prepared by General Technologies Corporation
for United States
Environmental Protection Agency
Under Contract Number 68-01-1513

JUNE 1973

[2]

## NOTICE

The attached document is a DRAFT CONTRACTOR'S REPORT. It includes technical information and recommendations submitted by the Contractor to the United States Environmental Protection Agency ("EPA") regarding the subject industry. It is being distributed for review and comment only. The report is not an official EPA publication and it has not been reviewed by the Agency.

The report, including the recommendations, will be undergoing extensive review by EPA, Federal and State agencies, public interest organizations and other interested groups and persons during the coming weeks. The report and in particular the contractor's recommended effluent limitations guidelines and standards of performance is subject to change in any and all respects.

The regulations to be published by EPA under Sections 304(b) and 306 of the Federal Water Pollution Control Act, as amended, will be based to a large extent on the report and the comments received on it. However, pursuant to Sections 304(b) and 306 of the Act, EPA will also consider additional pertinent technical and economic information which is developed in the course of review of this report by the public and within EPA. EPA is currently performing an economic impact analysis regarding the subject industry, which will be taken into account as part of the review of the report. Upon completion of the review process, and prior to final promulgation of regulations, an EPA report will be issued setting forth EPA's conclusions concerning the subject industry, effluent limitations guidelines and standards of performance applicable to such industry. Judgements necessary to promulgation of regulations under Sections 304(b) and 306 of the Act, of course, remain the responsibility of EPA. Subject to these limitations, EPA is making this draft contractor's report available in order to encourage the widest possible participation of interested persons in the decision making process at the earliest possible time.



The report shall have standing in any EPA proceeding or court proceeding only to the extent that it represents the views of the Contractor who studied the subject industry and prepared the information and recommendations. It cannot be cited, referenced, or represented in any respect in any such proceedings as a statement of EPA's views regarding the subject industry.

U.S. Environmental Protection Agency
Office of Air and Water Programs
Effluent Guidelines Division
Washington, D. C. 20460

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[4]

## ABSTRACT

This document presents the findings of an extensive study of the inorganic chemicals, chlor-alkali industry by the General Technologies Corporation for the Environmental Protection Agency for the purpose of developing effluent limitations guidelines, Federal standards of performance, and pretreatment standards for the industry, to implement Sections 304, 306 and 307 of the "Act".

Effluent limitations guidelines contained herein set forth the degree of effluent reduction attainable through the application of the best practicable control technology currently available and the degree of effluent reduction attainable through the application of the best available technology economically achievable which must be achieved by existing point sources by July 1, 1977 and July 1, 1983 respectively. The Standards of Performance for new sources and pretreatment standards contained herein set forth the degree of effluent reduction which is achievable through the application of the best available demonstrated control technology, processes, operating methods, or other alternatives.

Based on the use of Level I (BPCTCA) technology, the best practicable currently available treatment, 14 of the 25 chemicals under study can be manufactured with zero discharge of process waste water. With the use of Level II (BACTEA) technology, the best economically achievable, all of the 25 chemicals can be manufactured with zero discharge of process waste water. Zero discharge of process waste water is also achievable as a new source performance standard.

Supportive data and rationale for development of the proposed effluent limitations guidelines and standards of performance are contained in this report.

NOTICE: THESE ARE TENTATIVE RECOMMENDATIONS BASED UPON INFORMATION IN THIS REPORT AND ARE SUBJECT TO CHANGE BASED UPON COMMENTS RECEIVED AN DFURTHER INTERNAL REVIEW BY EPA.



[5]

## CONTENTS

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[2550] October 30, 1972

# EFFLUENT LIMITATION GUIDANCE FOR THE REFUSE ACT PERMIT PROGRAM INORGANIC CHEMICALS INDUSTRY



[2551]

## GENERAL

This guidance for the establishment of effluent limitations for discharges in the Inorganic Chemicals Industry category sets forth numerical limitations based on the application of best practicable control technology currently available. Schedule A values reflect the Agency's best technical judgment of the effluent levels which can be achieved by the application of the highest level of control technology which is now considered 'practicable' and 'currently available' for the industry. Schedule A values are based on experience with the technology, including demonstration projects, pilot plants, and actual use, which demonstrates that it is reliably achievable.

In every case of (i) new plants installing pollution abatement equipment and (ii) existing plants now beginning abatement programs, you should apply Schedule A values. In some cases, economic and social factors may affect the practicability of applying control techniques to achieve these values, and may require some modification of Schedule A values as to particular plants. These instances should be kept to an absolute minimum. Guidance on the economic and social factors which may require that you consider such modifications, as well as more detailed explanation of the engineering assumptions underlying the



Schedule A values, will be provided at technical seminars to be conducted concerning each industrial category.

[2552] Schedule B values represent the most lenient acceptable effluent levels. No plant should achieve less pollution reduction than Schedule B values. Schedule B values may be applied where a discharge has, at the time the permit is issued, commenced and made substantial progress on an abatement program that will be completed within 24 months or less from the time the discharge permit is issued. If the plant also has extensive ongoing pollution abatement programs in other areas such as air pollution the Regional Administrator may modify this 24-month period.

If effluent limits based on 'best practicable control technology' fail to meet water quality standards, then such limits will be upgraded to comply with water quality standards and EPA policy.

## INDUSTRIAL CATEGORY DESCRIPTION

Inorganic Chemicals, Alkalies and Chlorine are covered in the Standard Industrial Classification (SIC) 2812, 2816, and 2819. Inorganic compounds such as anhydrous ammonia, superphosphates and urea are not covered in this category since they are included in the Fertilizers Industry category. The following products were selected for Guidelines based on information and data available.

Aluminum Chloride
Aluminum Sulfate
Chlorine-Sodium Hydroxide
Hydrochloric Acid
[2553]
Hydrofluoric Acid
Hydrogen Peroxide
Lime
Nitric Acid
Elemental Phosphorus
Sulfuric Acid

## RATIONALE

### General

The effluent guidelines for the inorganic chemical industry were developed from information in the Industrial Waste Study of Inorganic Chemicals, Alkalies and Chlorine by General Technologies Corporation; from information resulting from a survey of 76 inorganic chemicals plants by the Manufacturing Chemists Association (MCA); from Corps of Engineers permit data and from use of engineering judgment.

The industries in these categories manufacture products from raw materials that are inorganic in nature, thereby resulting in wastewater containing a low biochemical oxygen demand, inert solids, large amounts of dissolved solids, and effluents with a wide range of pH values. The major pollutant common to nearly all of the industry is inorganic suspended solids, a parameter that can be controlled with sedimentation basins designed for minimal short circuiting and sufficient detention time.

[2554] Total dissolved solids, chiefly chlorides and sulfates, constitute the second major class of pollutants for the inorganic industry. However, it should be noted that guidelines are not presently placed on dissolved solids, chlorides, and sulfates. When the discharge of any of these parameters may be in violation of Federal or State or local water quality standards, limits will be established. When such is the case a substantial amount of dissolved solids reduction can be effected through in-plant controls some of which are:

(1) Chlorine-caustic
  - (a) non-contact vapor condensers.
  - (b) use of indirect chlorine coolers in the chlorine compression process
  - (c) collection and reuse of drying acid.
  - (d) recycling of sodium chloride from the evaporators concentrating caustic soda
  - (e) use of indirect vapor condensers in the brine dechlorination process



  - (f) recycle of brine filter backwashwater
  - (g) collection and reuse of effluent from waste chlorine gas disposal system
  - (h) maximum removal of brine solution from slurries resulting in precipitation of impurities from raw brine solutions

[2555]
  - (i) containment and recycling of spills and leaks back to the process.

(2) Nitric Acid
  - (a) replacement of barometric quench condensers with non-contact condensers
  - (b) the use of single and double mechanical pump seals
  - (c) curbing the proces area with recycling of spills.

(3) Hydrochloric Acid
  - (a) curbing and floor sumps to collect and recycle strong acid spills and leaks
  - (b) maximize the efficiency of the cooler and absorber to minimize the chloride wasteload from the scrubber.

(4) Hydrogen Peroxide (organic method)—separation of organic solvents from the aqueous media with decanters or API separators for recycle or recovery.

(5) Hydrofluoric Acid—maximize for efficiency of the acid absorbers to minimize the fluoride wasteload from ejector scrubber systems.

(6) Sulfuric Acid—curbing and floor sumps to collect and recycle spills and leaks.

## TREATMENT MODELS

Treatment models representing "Best Practicable Treatment" are described for each of the product industries. They are not intended to specify procedures [2556] or processes, but to illustrate and demonstrate the means by which "A" levels may

be achieved. Alternative abatement techniques which will achieve the same end are encouraged.

| | |
|---|---|
| Aluminum Chloride– | sedimentation and coagulation. |
| Aluminum Sulfate– | sedimentation and recycling of clarified effluent. |
| Chlorine-caustic– | sedimentation, chemical precipitation–coagulation–sedimentation, filtration, carbon adsorption, neutralization, water recycling, and water conservation practices. |
| Hydrochloric Acid– | segregation of cooling water, collection of spills and leaks for recycle or land disposal. |
| Hydrofluoric Acid– | lime precipitation, coagulation flocculation, sedimentation and neutralization. |
| Hydrogen peroxide | (organic method)–Biological oxidation of organic solvents, sedimentation. |
| Lime– | dry collection of dust. |
| Nitric Acid– | segregation of cooling water, collection of spills and leaks for recycle or land disposal. |
| Phosphorus– | sedimentation and recycle. |
| Sulfuric Acid– | segregation of cooling water, collection of spills and leaks for recycle or land disposal. |

[2557] **SPECIFIC FOR PRODUCT**

*Aluminum Chloride*–Level B is based upon reducing suspended solids in the scrubber wastewaters which do not use alkaline solutions to a level of 25 mg/l. Level A is based upon reducing suspended solids levels in alkaline scrubber solutions to 15 mg/l since this type of wastewater would produce an



aluminum hydroxide precipitate that will readily flocculate and settle to produce a clarified effluent. Those concentrations are used to calculate the achievable wasteload from water usage and production data in the General Technologies Report.

*Aluminum Sulfate*–Level B is based on lime neutralization followed by sedimentation and recycle of a portion of the effluent. Level A is based on total recycle from the treatment pond which is practiced in 10 of 12 plants in the MCA wastewater survey data. Plants producing iron-free Aluminum Sulfate may require special consideration.

*Chlorine-Caustic*–Effluent levels for suspended solids are based on 25 mg/l from settling ponds for the B level and 15 mg/l for the A level. Waste loads for suspended solids limits in pounds per ton of chlorine production are based on flow data from the General Technologies Report, the MCA survey and data supplied by the Chlorine Institute. Flow basis numbers are for process water only. Much of the data available includes cooling water or is from plants where cooling water and process water are not separated. To meet both A & B levels, it is expected that process water and cooling water separation and water recycle will be required.

[2558] The mercury effluent limitation of 0.1 pounds per day for the entire chlor-alkali . . . is to be measured at the outlet from the mercury treatment unit. Should there be another process at the location that has an effluent containing mercury, that stream must be treated in the mercury treatment unit and thus be included in the 0.1 pound per day limitation. Mercury residuals (i.e., mercury picked up between the treatment unit outlet and the discharge to the stream) are frequently a problem. Where residuals are a demonstratable problem, identify the quantity of mercury involved and develop a program with schedules for correction.

Lead generally separates out in settling ponds but may require soda ash or caustic treatment. Projects for installation of metal anodes provide benefits that will pay for the installa-

tion and eliminate lead in the effluent. Estimates of their present use indicate that one third of the plants use metal anodes now and an additional third have them under active consideration.

*Hydrochloric Acid* (chlorine burning process)—Level B is based on caustic neutralization of acid leaks and wastewater from the scrubber. Hydrochloric acid processes are quite commonly located at the same site as caustic chlorine plants and as such, the acid wastewaters can be used to neutralize alkaline wastewaters. Level A is achieved by returning leaks to the process or by neutralization and land disposal.

[2559] *Hydrofluoric Acid*—Level B can be achieved by treating effluents with lime to a pH of 10-11. This neutralizes the sulfuric acid, reduces the fluoride content to 5 ppm and suspended solids to 25 ppm. Acidification of the effluent reduces pH to 9 or less. Level A is based on a large reduction of process water flow achieved by recycle and 15 ppm suspended solids. This is documented by data from one plant.

*Hydrogen Peroxide* (organic process)—The B level is based on the disposal of the biodegradable solvent waste, either by discharge to a municipal biological treatment system or a solvent collection and recycling system. The A level is based on achieving 15 ppm suspended solids removal in the final effluent by coagulation.

*Lime*—Level B is based upon the discharge of wet scrubber waste to a settling pond with effluent containing 20 ppm suspended solids. Level A has no waterborne discharge since wet scrubber waste can be eliminated using dry collection methods.

*Nitric Acid*—Effluent from the process is due to leaks. Level B is based on neutralization of leakage with caustic. Level A is based on return of the leakage to the process or by land disposal of leaks.

*Phosphorus*—B levels are achieved by phosphorous burial, lime and settling pond treatment for solvable phosphates and fluorides and dry collection of solid phosphates. A small part



of the flow to the settling [2560] pond is discharged. The remainder is recycled. Recycle of water from the settling ponds provides the basis for Level A.

*Sulfuric Acid*—Wastes from this process are leaks. Level B is achieved by lime and settling pond treatment of the leaks to 25 ppm suspended solids. Level A is achieved by returning the leakage to the process. It may be necessary to give special consideration to operations producing high quality product.

## GENERAL CONSIDERATIONS

The pH level of any discharge stream from any process in these industries must be within a range of 6.0 to 9.0. The adjustment of pH presents no difficulty in the treatment of waste. Total neutralization may be undesirable in some cases due to TDS loads or natural buffering capacities.

Concentration limits for heavy metals will be established by the Regional Administrator. A guidance document on this subject is being prepared. Limits are needed on each metal present but the limit will vary depending on what other metals are present that cause a synergistic effect. Heavy metals include, but are not limited to, copper, zinc, cadmium, tin, selenium, nickel, lead, and chromium.

All solid waste materials generated within the industrial complex or collected from the waste treatment facilities, including such items as [2561] chemical sludges and filter cakes are to be disposed of in a well managed and well designed chemical land fill to prevent leachades and overflows from entering navigable waters or their tributaries.

Heat is a potential pollution problem in the inorganic chemical industry. Where settling basins and precipitation processes are used in the treatment of waste, there should be sufficient retention time to cool the stream down to acceptable temperature levels. However, some of the processes may not include this type of treatment. Calculation methods to determine

thermal loadings are presently being derived by Office of Enforcement and General Counsel to assist EPA Regional personnel in processing permit applications. However, thermal discharges must be in compliance with all applicable water quality standards (Federal and/or State).

The process wastewater from a particular plant should be limited on total pounds of a particular pollutant per day. The total pounds per day is the product of the pounds per unit of production multiplied by the production capacity.

In applying these limitations the source of water used in the plant must be taken into consideration. Where the source is the same as the receiving water the limitations applied are "net" increases. Where the source is municipal, private water supply, well water, or water from another drainage basin, the limitations applied are "gross" load.

[2562] The effluent guidelines are based on process wastewater, i.e., that coming in contact with process materials. This does not include noncontact cooling water, cooling tower blowdown or boiler blowdown.

## VIOLATIONS

The effluent limitations shown in Attachments A and B are average values. It shall be considered a violation of the waste discharge permit if the average values based on daily 24-hour composite samples over any 20 consecutive working days exceeds the limitations placed on any parameter in Attachment A or B.

It shall be considered a violation of the waste discharge permit if any single composite sample exceeds the limitations shown in Attachments A or B more than 50 percent.

Four violations in any one single year will require an action memorandum from the Regional Administrator containing recommendations on what action is to be taken.

Any single violation of the permit may be considered grounds for revocation.



## SAMPLING AND MONITORING

Sampling and monitoring is to be required to adequately characterize the effluent quality. Generally, only those parameters present in significant [2563] quantity need to be monitored. A review of data after an initial plan has been in effect for 6 months is in order to make adjustments as needed. Where there is potential for discharge of hazardous materials, spot checks will be needed at suitable intervals. Flow measurements may be other than continuous if continuous measurement is impractical and if the proposed alternate adequately characterizes the flow. Samples should be taken just prior to the discharge to the stream (except mercury—described elsewhere).

Analytical methods will be by Standard Methods, 13th edition, 1971. However, alternate methods may be approved upon submission of acceptable information and justification.

[2564] **Suggested Sampling and Analyses Requirements**

| *Parameter* | *Sample Type* | *Frequency* |
|---|---|---|
| Flow | Continuous | Continuous |
| Temperature | Continuous | Continuous |
| pH | Continuous | Continuous |
| Chemical Oxygen Demand | 24-hr Composite | Twice Weekly |
| Suspended Solids | 24-hr Composite | Three Times Weekly |
| Alkalinity | Grab | Twice Weekly |
| Total Dissolved Solids | 24-hr Composite | Three Times Weekly |
| Grease and Oil | Grab | Once Weekly |
| Chlorides | 24-hr Composite | Three Times Weekly |
| Sulfates | 24-hr Composite | Three Times Weekly |

Monitor for the following parameters if present:

| | |
|---|---|
| Chlorinated Hydrocarbons | BOD |
| Phenol | |

**Sampling and Analyses for Specific Industries**

| *Industry* | *Parameter* | | |
|---|---|---|---|
| Chloro-Alkali; Hg Cell | Mercury | 24-hr Composite | Daily |
| Chloro-Alkali; Diaphragm Cell | Lead | 24-hr Composite | Twice Weekly |
| Hydrofluoric Acid | Fluorides | 24-hr Composite | Twice Weekly |
| | Silicates | 24-hr Composite | Twice Weekly |
| Aluminum Chloride | Aluminum | 24-hr Composite | Twice Weekly |
| Phosphorus-Electrolytic | Phosphate | 24-hr Composite | Twice Weekly |
| | Aluminum | 24-hr Composite | Once Weekly |
| | Fluoride | 24-hr Composite | Twice Weekly |

[2565]

## X. REFERENCES


1. Industrial Waste Study of Inorganic Chemicals, Alkalies and Chlorine, U.S. Environmental Protection Agency draft report by General Technologies Corporation, 1821 Michael Faraday Drive, Reston, Virginia 22070, (July 23, 1971) 131 pages.
2. Manufacturing Chemists Association Wastewater Survey of the Inorganic Chemicals Industry, (June 1972).
3. Inorganic Chemicals Industry Profile (updated) by Datagraphics by Cyrus William Rice & Company, July 1971.
4. Industrial Waste Study—Mercury—Using Industries by Litton Systems, Inc., July 1971.




[2566]

## ATTACHMENT A

**Inorganic Chemicals, Alkali and Chlorine Industry Effluent Guidelines**

| *Product* | *Flow Basis* Gal/Ton* | *Lb per Ton of Product* Total Suspended Solids | Other by Note |
|---|---|---|---|
| ALUMINUM CHLORIDE | 120 | 0.015 | |
| ALUMINUM SULFATE | No waterborne process effluent | | |
| CAUSTIC CHLORINE:** | | | |
| Diaphragm Cell | 8,000 | 1.0 | 1 |
| Mercury Cell | 5,000 | 0.6 | 2 |
| Downs Cell | 7,300 | 0.9 | — |
| HYDROCHLORIC ACID (Chlorine burning) | No waterborne process effluent | | |
| HYDROFLUORIC ACID | 4,672 | 0.6 | 3 |
| HYDROGEN PEROXIDE (Organic process) | 8,600 | 1.1 | 4 |
| LIME/CALCINATION | No waterborne process effluent | | |
| NITRIC ACID | No waterborne process effluent | | |
| PHOSPHORUS | No waterborne process effluent | | |
| SULFURIC ACID (Sulfur burning contact plants) | No waterborne process effluent | | |

pH range is 6-9 for all products

NOTES: 1. 0.04 #/ton lead
2. 0.1 #/day mercury for the entire operation without regard to capacity***
3. 0.2 #/ton fluorides
4. 0.06 #/ton TOC

*The flow basis numbers are to show how numbers were derived and are not intended as flow limitations.

**Units are per ton of chlorine production.

***The EPA goal of no mercury discharge may reduce this number as it becomes practical.

[2567] **ATTACHMENT B**

**Inorganic Chemicals, Alkali and Chlorine Industry Effluent Guidelines**

| | | *Lb per Ton of Product* | |
|---|---|---|---|
| *Product* | *Flow Basis* Gal/Ton* | *Total Suspended Solids* | *Other by Note* |
| ALUMINUM CHLORIDE | 120 | 0.025 | – |
| ALUMINUM SULFATE | 400 | 0.08 | – |
| CAUSTIC CHLORINE** | | | |
| Diaphragm Cell | 30,000 | 6.3 | 1 |
| Mercury Cell | 20,000 | 4.3 | 2 |
| Downs Cell | 7,300 | 1.5 | – |
| HYDROCHLORIC ACID (Chlorine burning) | 1,000 | – | – |
| HYDROFLUORIC ACID | 36,000 | 7.5 | 3 |
| HYDROGEN PEROXIDE (Organic process) | 8,600 | 1.8 | – |
| LIME/CALCINATION | 200 | 0.03 | 4 |
| NITRIC ACID | 86 | 0.01 | – |
| PHOSPHORUS | 8,000 | 1.7 | 5 |
| SULFURIC ACID (Sulfur burning contact process) | 1,200 | 0.25 | – |

pH range is 6-9 for all products

NOTES: 1. 0.2 #/ton, lead
2. 0.1 #/day of mercury for the entire operation without regard to capacity
3. 1.5 #/ton, fluorides
4. 0.03 #/ton, COD
5. 0.2 #/ton, phosphates; 0.2 #/ton, fluorides; 0.001 #/ton, elemental phosphorus

*The flow basis numbers are to show how numbers were derived and are not intended as flow limitations.

**Units are per ton of chlorine production.

• • • •



[38 *Fed. Reg.* 21202 (August 6, 1973)]

[4330] **NOTICES**

## ENVIRONMENTAL PROTECTION AGENCY

### EFFLUENT LIMITATIONS GUIDELINES AND STANDARDS OF PERFORMANCE FOR NEW SOURCES

#### Advance Notice of Public Review Procedures

Advance notice is hereby given concerning notices of proposed rule making to be published by the Environmental Protection Agency ("EPA") with respect to effluent limitations guidelines, standards of performance, and pretreatment standards for new sources pursuant to sections 304(b) 306 and 307(c) of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251, 1314, 1316 and 1317(c); 86 Stat. 816 et seq.; Pub. L. 92–500) ("the Act"). The purpose of this notice is to facilitate public comment upon the regulations to be promulgated under sections 304(b), 306 and 307(c), both before and after the publication of the notices of proposed rule making. In addition, this notice will explain EPA's overall plans for development of effluent limitations guidelines and standards of performance for new sources and the approach which is being taken by the Agency in discharging the duties placed upon the Administrator under sections 304(b), 306 and 307(c) of the Act.

EPA believes that the exposure of the technical basis and reasoning underlying regulations to be established pursuant to sections 304(b), 306 and 307(c) is essential to the promulgation of sound effluent limitations guidelines and standards of performance for new sources. At the same time, because of the deadlines for action imposed upon the Administrator under the Act, both EPA and the public will be pressed to analyze and resolve highly complex and important issues in a relatively short time. In order both to develop sound regulations and meet the time schedules set by the Act, EPA intends to identify as many issues and elicit points of criticism at the earliest possible time. To resolve such issues often will require further staff work and management decision-making within EPA and may necessitate substantial redrafting of regulations and sup-

port documents. Therefore, extensive external review cannot be postponed until internal EPA review of initial recommendations for effluent limitations guidelines and standards of performance has been completed, but must proceed concurrently with EPA's own internal review and decision-making if the Act's deadlines are to be met.

EPA has already begun this process by seeking comments upon draft technical reports from persons and organizations known to be interested in particular source categories. These reports (which are discussed further below) contain tentative recommended effluent limitations guidelines and standards of performance. This notice seeks to supplement this already initiated external review and facilitate further review and public comment in late August and early September, when notices of proposed rule making will be published in the FEDERAL REGISTER. The notice is divided into three parts. First, the basic legal authority for regulations concerning effluent limitations guidelines and standards of performance for new sources will be set forth. Second, EPA's general methodology will be described. Third, the means by which EPA has to date, and will in the future, seek the widest possible public scrutiny of the technical and legal basis for the regulations to be established will be explained.

1. *Legal authorities*—(a) *Existing point sources.* Section 301(b) of the Act requires the achievement by not later than July 1, 1977, of effluent limitations for point sources, other than publicly owned treatment works, which require the application of the best practicable control technology currently available as defined by the Administrator pursuant to section 304(b) of the Act. Section 301(b) also requires the achievement by not later than July 1, 1983, of effluent limitations for point sources, other than publicly owned treatment works, which require the application of the best available technology economically achievable which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, as determined in accordance with regulations issued by the Administrator pursuant to section 304(b) of the Act.



Section 304(b) of the Act requires the Administrator to publish regulations providing guidelines for effluent limitations setting forth the degree of effluent reduction attainable through the application of the best practicable control technology currently available (the 1977 requirement) and the degree of effluent reduction attainable through the application of the best control measures and practices achievable including treatment techniques, process and procedure innovations, operating methods and other alternatives (the 1963 requirements).

(b) *New sources.* Section 306 of the Act requires the achievement by new sources of a Federal standard of performance providing for the control of the discharge of pollutants which reflects the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants.

Section 306(b)(1)(B) of the Act requires the Administrator to propose regulations establishing Federal standards of performance for categories of new sources included in a list published pursuant to section 306(b)(1)(A) of the Act. The Administrator published in the FEDERAL REGISTER of January 16, 1973, (38 FR 1624) a list of source categories for which standards of performance for new sources will initially be established. Section 306(a)(2) defines "new source" as "any source, the construction of which is commenced after the publication of proposed regulations prescribing a stand- [4331] ard of performance under this section which will be applicable to such source • • •."

Section 307(c) of the Act requires the Administrator to promulgate pretreatment standards for a category of new sources at the same time that standards of performance for that category are promulgated pursuant to section 306. EPA presently plans to include in proposed and promulgated regulations establishing standards of performance for new sources, provisions which will require application of pretreatment standards which are consistent with EPA's proposed pretreatment stand-

ards for existing sources. The basis for the latter standards is set forth in the FEDERAL REGISTER of July 19, 1973 (38 FR 19236) under 40 CFR Part 128. The provisions and rationale of Part 128 are equally applicable to sources which would constitute "new sources", under section 306 if they were to discharge pollutants directly to navigable waters, except for § 128.133. That section provides a pretreatment standard for "incompatible pollutants" which requires application of the "best practicable control technology currently available," subject to an adjustment for amounts of pollutants removed by the publicly owned treatment works. Since the pretreatment standards to be promulgated under section 307(c) apply to new sources, the regulations establishing standards of performance for new sources will amend § 128.133 to require application of the standard of performance for new sources rather than the "best practicable" standard applicable to existing sources under sections 301 and 304(b) of the Act.

2. *EPA's methodology*—(a) *Overall approach.* The technical studies discussed below and the development of regulations for effluent limitations guidelines and standards of performance are undertaken in the following manner. The point source category is first studied for the purpose of determining whether separate limitations and standards are appropriate for different segments within the category. This analysis includes a determination of whether differences in raw material used, product produced, manufacturing process employed, age and size of plants, waste water constituents and other factors require development of separate limitations and standards for different segments of the point source category. The raw waste characteristics for each such segment are then identified. This includes an analysis of (1) the source, flow and volume of water used in the process employed and the sources of waste and waste waters in the plant; and (2) the constituents of waste waters. The constituents of the waste waters which should be subject to effluent limitations guidelines and standards of performance are then identified.

Next, the control and treatment technologies existing within each segment are identified. This includes an identification of



each distinct control and treatment technology, including both in-plant and end-of-process technologies, which exists or is capable of being designed for each segment. It also includes an identification of the effluent level resulting from the application of each of the treatment and control technologies, in terms of the amount of constituents and the chemical, physical, and biological characteristics of pollutants. The problems, limitations and reliability of each treatment and control technology are also identified. In addition, any non-water quality environmental impact, such as the effects of the application of such technologies upon other pollution problems, including air, solid waste, noise and radiation is examined. Finally, the energy requirements of each control and treatment technology are determined, as well as the cost of the application of such technologies.

This information is then evaluated in order to determine what levels of technology constitute the "best practicable control technology currently available", "best available technology economically achievable" and the "best available demonstrated control technology, processes, operating methods, or other alternatives." In identifying such technologies, various factors are considered including the total cost of the application of technology in relation to the effluent reduction benefits to be achieved from such application, the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes and non-water quality environmental impact (including energy requirements).

The data on which the above analysis was performed included EPA permit applications, EPA sampling and inspections, industry submissions and consultant reports, including the reports discussed below.

(b) *Technical studies.* Studies of some thirty point source categories for which regulations will initially be promulgated were instituted by EPA as soon as possible after passage of the Federal Water Pollution Control Act Amendments of 1972 (October 18, 1972). These studies constitute in-depth analyses of the technological feasibility and economic costs of reducing

or eliminating discharges of pollutants. The studies, along with other information obtained by EPA in the course of internal and external review of the resulting reports or otherwise available to EPA, will serve as a foundation for the regulations to be issued under section 304(b) and 306 of the Act.

To have attempted to amass within the Agency in a very short period of time the large number of technical personnel with experience in the many diverse point source categories to be covered would have been impractical. Therefore, the overall data base and initial analysis has been obtained through contracts with qualified technical consultants. These consultants were instructed to perform in-depth studies of each point source category, under the supervision and with the assistance of EPA, in accordance with the methodology described above. The resulting draft reports include initial tentative recommendations with respect to the effluent limitations guidelines and standards of performance for the particular point source category concerned. The draft reports and recommendations are then subjected to extensive internal and external review. The contractors are assisting in the initial collection and collation of the data base. The responsibility for establishing effluent limitations guidelines and standards of performance for new sources, of course, remains with EPA.

For each of the point source categories covered by the technical studies, EPA is also conducting supplementary studies of the economic impact which could result from application of alternative control and treatment technologies. These studies add to the economic analyses already undertaken as part of the technical studies, which center upon the investment and operating costs associated with various alternative control and treatment technologies, by estimating the broader economic effects which might result from the required application of various technologies. The economic impact studies will investigate effects of alternative approaches in terms of product price increases, effects upon employment and the continued viability of affected plants, effects upon foreign trade and other competitive effects. These reports may be obtained in the same manner as the EPA draft reports, as discussed in section 3(c) below.



Contractors' technical studies of the following point source categories have been completed:

1. Pulp, Paper and Paperboard Mills
2. Builders Paper and Board Mills
3. Meat Product and Rendering Processing
4. Dairy Product Processing
5. Grain Mills
6. Canned and Preserved Fruits and Vegetables Processing
7. Canned and Preserved Seafood Processing
8. Beet Sugar Processing
9. Cane Sugar Processing
10. Textile Mills
11. Cement Manufacturing
12. Feedlots
13. Electroplating
14. Organic Chemicals Manufacturing
15. Inorganic Chemicals Manufacturing
16. Plastics and Synthetic Materials Manufacturing
17. Soap and Detergent Manufacturing
18. Fertilizer Manufacturing
19. Petroleum Refining
20. Iron and Steel Manufacturing
21. Nonferrous Metals Manufacturing
22. Phosphate Manufacturing
23. Steam Electric Powerplants
24. Ferroalloy Manufacturing
25. Leather Tanning and Finishing
26. Glass Manufacturing
27. Insulation Fiberglass Manufacturing
28. Timber Products Processing
29. Beet Sugar Processing Industry
30. Insulation Fiberglass Industry

3. *Public participation in the development of regulations*—(a) *Review of the draft contractors' reports.* The completed contractors' reports are presently undergoing intensive analysis within [4332] EPA and are also receiving extensive external review and comment. This process of internal and external review is being carried on simultaneously in order to make the most of the time available under the Act. Once the contractors' draft reports are received by EPA, they are immediately distributed to a list of external reviewers for critical analysis. The persons or institutions listed below have been sent the draft reports. They have been asked to comment within 30 days so there will be time for their comments to be taken into account by EPA when preparing proposed rule making documents.

**States**

Alabama Water Improvement Commission
State Office Building
Montgomery, Alabama 36104

State of Alaska
Department of Environmental Conservation
Pouch O
Juneau, Alaska 99801

Commission of Arizona State Department of Health
4019 N. 33rd Avenue
Phoenix, Arizona 95017

Department of Pollution Control and Ecology
1100 Harrington Avenue
Little Rock, Arkansas 72202

California State Water Resources Control Board
Sacramento, California 95814

Water Pollution Control Division
Colorado Department of Health
4210 E 11th Avenue
Denver, Colorado 80220

Division of Water Compliance and Hazardous Substances
Department of Environmental Protection
State Office Building
Hartford, Connecticut 06115



Department of Natural Resources and Environmental Control
Capitol Complex
Tatnall Building
Dover, Delaware 19901

Department of Pollution Control
2562 Executive Center Circle East
Tallahassee, Florida 32301

Environmental Protection Division
Department of Natural Resources
47 Trinity Avenue, S.W.
Atlanta, Georgia 30334

Assistant Director for Environmental Health
Hawaii State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Indiana Stream Pollution Control Board
1330 West Michigan Street
Indianapolis, Indiana 46206

State of Idaho
Department of Environmental and Community Services
State House
Boise, Idaho 83720

Water Quality Management Division
Department of Environmental Quality
Lucos State Office Building
Des Moines, Iowa 50319

Division of Environmental Health
Kansas State Department of Health
535 Kansas Avenue
Topeka, Kansas 66603

Kentucky Water Pollution Control Commission
275 East Main Street
Frankfort, Kentucky 40601

Louisiana Stream Control Commission
P.O. Drawer FC
University Station
Baton Rouge, Louisiana 70803

Environmental Health Division
Louisiana State Board of Health
New Orleans, Louisiana

Department of Environmental Protection
State House
Augusta, Maine 04430

Water Resources Administration
Tower State Office Building
D2 Water Resources
Annapolis, Maryland 21401

Division of Water Pollution Control
State Office Building
100 Cambridge Street
Boston, Massachusetts 02202

Michigan Water Resources Commission
Steven T. Mason Building
Lansing, Michigan 45916

Minnesota Pollution Control Agency
State Board of Health Building
717 Delaware Street, SE
Minneapolis, Minnesota 55440

Mississippi Air and Water Pollution Control Commission
P.O. Box 827
Jackson, Mississippi 39205

Missouri Clean Water Commission
P.O. Box 154
Jefferson City, Missouri 65101

Division of Environmental Sanitation
State Department of Health
Cogswell Building
Helena, Montana 59601

Department of Environmental Control
1420 P Street
Lincoln, Nebraska 60509

Nevada Commission of Environmental Protection
201 South Fall Street
Carson City, Nevada 89701



New Hampshire Water Supply and Pollution Control Commission
Prescott Park
105 Loudon Road
Concord, New Hampshire 03301

Department of Environmental Protection
P.O. Box 1390
Trenton, New Jersey 08625

New Mexico Environment Improvement Agency
P.O. Box 2348
Santa Fe, New Mexico 87501

Industrial Waste Bureau
New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12201

Office of Air and Water Resources
Department of Natural and Economic Resources
P.O. Box 27687
Raleigh, North Carolina 27611

Environmental Health and Engineering Services
Department of Health
State Capitol
Bismarck, North Dakota 58501

Ohio Environmental Protection Agency
Columbus, Ohio 43216

Department of Pollution Control
2241 N.W. 40th Street
Oklahoma City, Oklahoma 73112

Oregon Department of Environmental Quality
1234 S.W. Morrison
Portland, Oregon 97205

Bureau of Sanitary Engineering
Department of Environmental Resources
P.O. Box 2351
Harrisburg, Pennsylvania 17120

Division of Water Pollution Control
Rhode Island Department of Health
State Office Building
Providence, Rhode Island 02903

South Carolina Pollution Control Authority
P.O. Box 11628
Columbia, South Carolina 29311

Division of Sanitary Engineers and Environmental Protection
State Department of Health
State Capitol
Pierre, South Dakota 57501

Division of Water Quality Control
Department of Public Health
621 Cordell Hull Building
Nashville, Tennessee 37219

Texas Water Control Board
P.O. Box 13246
Capitol Station
Austin, Texas 78711

Bureau of Environmental Health
Division of Health
44 Medical Drive
Salt Lake City, Utah 84113

Vermont Agency of Environmental Conservation
Montpelier, Vermont 05602

Virginia State Water Control Board
1010 State Office Building
Richmond, Virginia 23219

Washington Department of Ecology
P.O. Box 829
Olympia, Washington 98504

West Virginia Division of Water Resources
Department of Natural Resources
1201 Greenbriar Street
Charleston, West Virginia 25311



Division of Environmental Protection
Wisconsin Department of Natural Resources
P.O. Box 450
Madison, Wisconsin 53701

Sanitary Engineering Services
Division of Health and Medical Services
Department of Health and Social Services
State Office Building
Cheyenne, Wyoming 82001

**Territories**

Environmental Quality Commission
Government of Samoa
Pago-Pago, Tutuila
American Samoa 96920

Water Pollution Control Program
Government of Guam
P.O. Box 2816
Agana, Guam 96910

Environmental Quality Board
P.O. Box 11785
San Juan, Puerto Rico 00910

Office of High Commission
Division of Environmental Health
Trust Territory of the Pacific Islands
Saijsan Mariana Island 92950

**River Basin Commissions**

Delaware River Basin Commission
25 State Police Drive
West Trenton, New Jersey 08628

New England Interstate Water Pollution Control Commission
[4333] 607 Boylston Street
Boston, Massachusetts 02116

Ohio River Valley Sanitation Commission
414 Walnut Street
Cincinnati, Ohio 45202

The reports have also been transmitted to the following agencies or organizations:

**Agencies and Offices of/or Related to the Federal Government**

Department of Agriculture
Atomic Energy Commission
Department of Commerce
Department of Defense
Federal Power Commission
Department of Health, Education, and Welfare
Department of Housing and Urban Development
Department of the Interior
Office of the Energy Advisor
Department of the Treasury
National Industrial Pollution Control Council
U.S. Department of Commerce
Water Resources Council
Tennessee Valley Authority

**Public Interest Groups**

The American Society of Civil Engineers
The American Society of Mechanical Engineers
Businessmen for the Public Interest
Conservation Division
National Wildlife Federation
The Conservation Foundation
Environmental Defense Fund, Inc.
Hudson River
Sloop Restoration, Inc.
Natural Resources Defense Council
Water Pollution Control Federation

**Industry Trade Associations or Companies**

The Aluminum Association
Aluminum Smelting and Recycling Institute
American Corn Millers Federation
American Electroplaters' Society
American-Florida Sugar Cane League
American Frozen Food Institute
American Hardboard Association



American Iron and Steel Institute
American Livestock Feeders Association
American Meat Institute
American Mining Congress
American National Cattleman's Association
American Paper Institute
American Petroleum Institute
American Plywood Association
American Public Power Association
American Shrimp Canners Association
American Wood Preservers Association
American Wood Preservers Institute
American Textile Manufacturers Institute
A.S.G. Industries, Inc.
Atomic Industrial Forum, Inc.
Beet Sugar Development Foundation
Carpet and Rug Institute
Catfish Farmers of America
Chesapeake Bay Seafood Industries Association, Inc.
Chlorine Institute
Copper and Brass Fabricators Council
Corn Refiners Association, Inc.
Dairy Industry Committee
Dimmitt Agricultural Industry
Edison Electric Institute
Environmental Pollution Control Program
Glass Container, Inc.
The Ferroalloy Association
The Fertilizer Institute
Ford Motor Company
Glass Division
Glass Containers Manufacturers Institute
Hawaiian Sugar Planters Association
Hardwood Plywood Manufacturing Association
Institute of American Poultry Industries
International Institute of Synthetic Rubber Producers
Libbey-Owens-Ford Co.
Manufacturing Chemists Association
Metal Finishers Suppliers Association
Miller's National Federation
National Association of Electric Companies
National Association of Metal Finishers

National Broiler Council
National Canners Association
National Council of the Paper Industry for Air and Stream Improvement, Inc.
National Independent Meat Packers Association
National Fisheries Association
National Forest Products Association
National Milk Producers Federation
National Pork Producers Association
National Renders Association, Inc.
National Rural Electric Cooperative Association
Northern Textile Association
National Soft Wheat Millers Association
Portland Cement Association
P.P.G. Industries, Inc.
Protein Cereal Products Institute
Puerto Rico Land Administration
Rice Millers Association
Rubber Manufacturing Association
Technical Association of the Pulp and Paper Industry
Soap and Detergent Association
Synthetic Organic Chemical Manufacturers Association
Tanner's Council of America, Inc.
Tennessee Valley Public Power Association
Tuna Research Foundation, Inc.
Technical Association of the Pulp and Paper Industry
United States Beet Sugar Association
United States Cane Sugar Refiner's Association
Western States Meat Packers Association
Western Wood Preserver Association

(b) *Public availability of draft technical reports.* The draft repo ts are voluminous and rapid reproduction in large quantities is difficult to accomplish. In order to maximize the usefulness of early external review of the reports, the reports must be transmitted to interested persons immediately upon receipt by EPA. Printing of substantial quantities of the reports would consume two to three weeks and, under applicable federal regulations, no more than approximately 160 copies of the reports may be provided through outside printing contracts. The 160 copies of the report supplied by the contractors have already been largely exhausted in transmissions to the organizations listed above, and for internal review purposes within EPA. However, a copy of every report is available in each of EPA's regional offices, which are listed in the Appendix to this notice, and a complete set of the reports is also available in EPA's Washington offices (Office of Public Affairs, Environmental Protection Agency, Room W-227, Waterside Mall, Washington, D.C. 20460). The Washington Office will also maintain a complete set of comments received from the public upon draft reports and upon the notices of proposed rule making which will subsequently be published. The draft reports, revised EPA reports which are described below, and all public comments, will be available for inspection and copying during regular business hours. Under EPA's information regulations (40 CFR, Part 2), a fee may be required for making copies.



In addition to review of the EPA Copies of the reports, interested persons may in many instances obtain a copy of a draft report by contacting an organization listed above with which they have an affiliation or by seeking to review a copy in the possession of the appropriate State agency.

(c) *Public availability of EPA draft reports.* Upon conclusion of internal and external review of the initial draft reports and their tentative recommendations, an EPA draft report will be prepared in support of proposed regulations to be issued in the FEDERAL REGISTER. The EPA draft report will be published simultaneously with the notice of proposed rule making. The EPA draft report may be different from the contractors' reports, particularly as to the assessment of practicability or availability of technology, and the conclusions reached with respect to effluent limitations guidelines and standards of performance for new sources.

However, EPA does not anticipate that the EPA report will be markedly different in terms of the fundamental data base for the regulations. In most cases, major issues or objections to the approach taken or the conclusions reached in the EPA draft report will have already been raised by the contractors' draft report. Criticisms of the adequacy of the data base and the analytical methods employed should therefore be expressed now rather than after the notice of proposed rule making.

Nevertheless, EPA does not regard the contractors' draft report as an official EPA document and additional comments will, of course, be solicited once the EPA draft report and the associated proposed regulations are published (A final EPA report will also be prepared and published in support of the final regulations promulgated under sections 301, 304(b), 306 and 307(c).) The EPA draft report will be sent to the list of reviewers set forth earlier in this notice. In addition, EPA is establishing a mailing list of other persons wishing to obtain a copy of the EPA draft report. Any person wishing to be included on the list should so request as soon as possible, but no later than August 20, 1973. The request should be addressed to the "EPA Information Center, Attention: Mr. Philip B. Wisman, Environmental Protection Agency, Room W–327, Waterside Mall, Washington, D.C. 20460", and should indicate which specific reports the person or organization is interested in receiving. EPA will transmit a copy of the EPA draft report to those on the mailing list, as soon as the report is available. Copies of the EPA draft reports will otherwise be transmitted, upon request to EPA, at the address just quoted, as soon as possible. The economic studies referred to in section 2(b) above will be made available upon request in the same manner as the EPA draft reports.

EPA desires to make copies of all reports available to interested parties wishing to comment as soon as possible. EPA therefore requests the cooperation of the [4334] public who are interested in, but not directly affected by, the proposed regulations in awaiting the final EPA report to be published after the final regulation is printed in the FEDERAL REGISTER, rather than requesting copies of the EPA draft reports.

(d) *Solicitation of public comments.* By seeking comments upon the initial draft reports which have already been prepared, and the initial recommended guidelines and standards which those reports contain, much of the analysis and comment which would ordinarily occur after notices of proposed rule making are published is taking place now. In this way the resolution of many issues can be accomplished even before notices of proposed rule making are published. These issues



will be identified and their resolution explained in the notices of proposed rule making. Issues which remain unresolved will be highlighted in the notices. In addition, EPA hopes to enable all interested parties to be sufficiently familiar with the complex technical details underlying the proposed effluent limitations and standards so that they can respond to notices of proposed rule making in a relatively short time. In order to meet the deadlines imposed by the Act, the present plan is that the notices of proposed rule making will request formal, public comments within 21 days of publication of the notices in the FEDERAL REGISTER. Those persons who have indicated their desire to be included on the mailing list described above will receive copies of EPA's draft report supporting the proposed regulations in the FEDERAL REGISTER. As noted, these reports will reflect EPA's judgment as to the proper regulations; however, they will be based in large part upon the initial draft reports (which will have been available in most cases since early July 1973) and any comments received thereon.

EPA will consider all comments received up to the time indicated in the notices of proposed rule making. In addition, to the extent time allows, early comments upon the initial draft reports will be considered when developing proposed rule making regulations.

(e) *Conclusion.* In summary, EPA is, by this notice, seeking to encourage as wide ranging and thorough public review prior to proposal and promulgation of effluent limitations guidelines and standards of performance as is possible within the time allowed. The following specific steps may be taken by interested persons:

1. Submit comments upon initial draft reports and economic studies. To facilitate rapid transmission of comments to the persons concerned within EPA, and also have a copy which is immediately available for public review, EPA requests that comments be submitted in triplicate. All comments received before or after publication of the notice of proposed rule making, as well as all technical and economic reports, will be available for inspection and copying at the Office of Public

Affairs, Room 227, West Tower, Waterside Mall, during regular business hours (8:00 a.m.–4:30 p.m.).

2. Request inclusion on a mailing list for the EPA draft reports and economic studies which will be published about the same time as notices of proposed rule making in the FEDERAL REGISTER. Requests to be included on the mailing list should be received by August 20, 1973 and should indicate which specific reports are requested.

3. Comment upon the notices of proposed rule making and the associated draft EPA technical and economic reports. All comments received within 21 days after publication of the notices in the FEDERAL REGISTER will be considered.

4. All public comments, requests to be included on the mailing list for reports and other requests for reports may be addressed to "EPA Information Center, Attention: Mr. Philip B. Wisman, Environmental Protection Agency, Room W–327, Waterside Mall, Washington, D.C. 20460."

In conclusion, it should be emphasized that EPA seeks comments upon its overall approach and legal interpretation of its responsibilities under sections 304(b), 306 and 307(c) of the Act, as well as upon the technical aspects of the initial draft reports, and the EPA reports to be issued. However, it should be also emphasized that the early expression of comments is essential if EPA is to be able to make whatever adjustments and responses which may be necessary in time to satisfy its responsibilities under the Act. In the event comments are in the nature of criticisms as to the adequacy of data which is available or which may be relied upon by the Agency, comments should identify any additional data which may be available and should indicate how such data is pertinent to the development of regulations under sections 301, 304(b), 306 and 307(c) of the Act. In the event comments address the approach taken to establishing an effluent limitation guideline or standard of performance, EPA solicits suggestions as to what alternative approach should be taken, or result reached, and why and how



this fits with the detailed requirements of sections 304(b), 306 and 307(c) of the Act.

Dated: July 31, 1973.

ROBERT L. SANSOM,
*Assistant Administrator for*
*Air and Water Programs.*

## Appendix

Director, Office of Public Affairs
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Director of Public Affairs
Region I
Environmental Protection Agency
Room 2303
John F. Kennedy Federal Building
Boston, Massachusetts 02203

Director of Public Affairs
Region II
Environmental Protection Agency
Room 847
26 Federal Plaza
New York, New York 10007

Director of Public Affairs
Region III
Environmental Protection Agency
Curtis Bldg., 6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Director of Public Affairs
Region IV
Environmental Protection Agency
Suite 300
1421 Peachtree Street, N.E.
Atlanta, Georgia 30309

Director of Public Affairs
Region V
Environmental Protection Agency
1 N. Wacker Drive
Chicago, Illinois 60606

Director of Public Affairs
Region VI
Environmental Protection Agency
1600 Patterson Street
Dallas, Texas 75201

Director of Public Affairs
Region VII
Environmental Protection Agency
1735 Baltimore Street
Kansas City, Missouri 64108

Director of Public Affairs
Region VIII
Environmental Protection Agency
Lincoln Tower, Room 916
1860 Lincoln Street
Denver, Colorado 80203

Director of Public Affairs
Region IX
Environmental Protection Agency
100 California Street
San Francisco, California 94102

Director of Public Affairs
Region X
Environmental Protection Agency
1200 6th Avenue
Seattle, Washington 98101

[FR Doc.73–16133 Filed 8–3–73; 8:45 am]

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[4335] This document is available in limited quantities through the U.S. Environmental Protection Agency, Information Center, Room W-327 Waterside Mall, Washington, D.C. 20460.

The document will subsequently be available through the National Technical Information Service, Springfield, Virginia 22151.



[4436] EPA-230/1-73-015
AUGUST 1973

# Economic Analyses of Proposed Effluent Guidelines

# INORGANIC CHEMICALS, ALKALI AND CHLORINE INDUSTRIES (Major Products)

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Planning and Evaluation
Washington, D.C. 20460

[4337] This report has been reviewed by the Office of Planning and Evaluation, EPA, and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

[4338]

# PREFACE

The attached document is a contractors' study prepared for the Office of Planning and Evaluation of the Environmental Protection Agency ("EPA"). The purpose of the study is to analyze the economic impact which could result from the application of alternative effluent limitation guidelines and standards of performance to be established under sections 304(b) and 306 of the Federal Water Pollution Control Act, as amended.

The study supplements the technical study ("EPA Development Document") supporting the issuance of proposed regulations under sections 304(b) and 306. The Development Document surveys existing and potential waste treatment control methods and technology within particular industrial source categories and supports promulgation of certain effluent limitation guidelines and standards of performance based upon an analysis of the feasibility of these guidelines and standards in accordance with the requirements of sections 304(b) and 306 of the Act. Presented in the Development Document are the investment and operating costs associated with various alternative control and treatment technologies. The attached document supplements this analysis by estimating the broader economic effects which might result from the required application of various control methods and technologies. This study investigates the effect of alternative approaches in terms of produce price increases, effects upon employment and the continued viability of affected plants, effects upon foreign trade and other competitive effects.

The study has been prepared with the supervision and review of the Office of Planning and Evaluation of EPA. This report was submitted in fulfillment of Task Order NO. 8, Contract 68-01-1541 by Arthur D. Little, Inc. Work was completed as of August 1973.

This report is being released and circulated at approximately the same time as publication in the Federal Register of a notice of proposed rule making under sections 304(b) and 306 of the Act for the subject point source category. The study has not been reviewed by EPA and is not an official EPA publication.



The study will be considered along with the information contained in the development document and any comments received by EPA on either document before or during proposed rule making proceedings necessary to establish final regulations. Prior to final promulgation of regulations, the accompanying study shall have standing in any EPA proceeding or court proceeding only to the extent that it represents the views of the contractor who studied the subject industry. It cannot be cited, referenced, or represented in any respect in any such proceeding as a statement of EPA's views regarding the subject industry.

[4339] **TABLE OF CONTENTS**





**TABLE OF CONTINUED**



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[4455] EPA 440/1-73/007

# Development Document for Proposed Effluent Limitations Guidelines and New Source Performance Standards for the

# MAJOR INORGANIC PRODUCTS

## Segment of the Inorganic Chemicals Manufacturing Point Source Category

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

AUGUST 1973



[4456]

# DEVELOPMENT DOCUMENT

for

# PROPOSED EFFLUENT LIMITATIONS GUIDELINES

and

# NEW SOURCE PERFORMANCE STANDARDS

for the

# MAJOR INORGANIC PRODUCTS SEGMENT OF THE INORGANIC CHEMICALS MANUFACTURING POINT SOURCE CATEGORY

RUSSELL TRAIN
Administrator

ROBERT L. SANSOM
Assistant Administrator for Air & Water Programs

ALLEN CYWIN
Director, Effluent Guidelines Division

ELWOOD E. MARTIN
Project Officer

September, 1973

Effluent Guidelines Division
Office of Air and Water Programs
U.S. ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

[4457]

## ABSTRACT

This document presents the findings of an extensive study of selected major inorganic chemicals for the purpose of developing effluent limitation guidelines for existing point sources and standards of performance and pretreatment standards for new sources, to implement Sections 304, 306 and 307 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1551, 1314, and 1316, 86 Stat. 816 et seq.) (the "Act").

Effluent limitations guidelines contained herein set forth the degree of effluent reduction attainable through the application of the best practicable control technology currently available (BPCTCA) and the degree of effluent reduction attainable through the application of the best available technology economically achievable (BATEA) which must be achieved by existing point sources by July 1, 1977 and July 1, 1983 respectively. The standards of performance and pretreatment standards for new sources contained herein set forth the degree of effluent reduction which is achievable through the application of the best available demonstrated control technology, processes, operating methods, or other alternatives.

Based on the application of best practicable technology currently available 14 of the 25 chemicals under study can be manufactured with no discharge of process waste water pollutants to navigable waters. With the best available technology economically achievable 23 of the 25 chemicals can be manufactured with no discharge of process waste water pollutants to navigable waters. No discharge of process waste water pollutants to navigable waters is achievable as a new source performance standard for all chemicals except titanium dioxide.

Supporting data and rationale for development of the proposed effluent limitations guidelines and standards of performance are contained in this report.



[4458]

## CONTENTS



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[4473]

# SECTION III

## INTRODUCTION

### Purpose and Authority

The United States Environmental Protection Agency (EPA) is charged under the Federal Water Pollution Control Act Amendments of 1972 with establishing effluent limitations which must be achieved by point sources of discharge into the navigable water of the United States.

Section 301(b) of the Act requires the achievement by not later than July 1, 1977, of effluent limitations for point sources, other than publicly owned treatment works, which are based on the application of the best practicable control technology currently available as defined by the Administrator pursuant to Section 304(b) of the Act. Section 301(b) also requires the achievement by not later than July 1, 1983, of effluent limitations for point sources, other than publicly owned treatment works, which are based on the application of the best available technology economically achievable which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, as determined in accordance with regulations issued by the Administrator pursuant to Section 304(b) to the Act. Section 306 of the Act requires the achievement by new sources of a Federal standard of performance providing for the control of the discharge of pollutants which reflects the greatest degree of effluent reduction which the Administrator determines to be achievable through the application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants. Section 304(b) of the Act requires the Administrator to publish within one year of enactment of the Act, regulations providing guidelines for effluent limitations setting forth the degree of effluent reduction attainable through the application of the best practicable control technology currently available and the degree of effluent reduction attainable through the application of the best control



measures and practices achievable including treatment techniques, process and procedure innovations, operation methods and other alternatives. The regulations proposed herein set forth effluent limitations guidelines pursuant to Section 304(b) of the Act for the inorganic chemicals manufacturing point source category.

Section 306 of the Act requires the Administrator, within one year after a category of sources is included in a list published pursuant to Section 306(b) (1) (A) of the Act, to propose regulations establishing Federal standards of performances for new sources within such categories. The Administrator published in the Federal Register of January 16, 1973 (38 F.R. 1624), a list of 27 source categories. Publication of the list constituted announcement of the Administrator's intention of establishing, under Section 306, standards of performance [4474] applicable to new sources within the inorganic chemical manufacturing point source category, which was included within the list published January 16, 1973.

### SUMMARY OF METHODS USED FOR DEVELOPMENT OF EFFLUENT LIMITATION GUIDELINES AND STANDARDS OF PERFORMANCE

The Environmental Protection Agency has determined that a rigorous approach including plant surveying and verification testing is necessary for the promulgation of effluent standards from industrial sources. A systematic approach to the achievement of the required guidelines and standards includes the following:

(a) Categorization of the industry and determination of those industrial categories for which separate effluent limitations and standards need to be set;

(b) Characterization of the waste loads resulting from discharges within industrial categories and subcategories;

(c) Identification of the range of control and treatment technology within each industrial category and subcategory;

(d) Identification of those plants having the best practical technology currently available (exemplary plants); and

(e) Generation of supporting verification data for the best practical technology including actual sampling of plant effluents by field teams.

The culmination of these activities is the development of the guidelines and standards based on the best practicable current technology.

This report describes the results obtained from application of the above approach to the inorganic chemicals industry. Thus, the survey and testing covered a wide range of processes, products, and types of wastes. Studies of a total of twenty-five chemicals, listed in terms of products below, are summarized in this report. A separate report covering the phosphorus based segment of the phosphorus chemicals industry was also generated under the same contract.

*Selected Inorganic Chemicals*

| | |
|---|---|
| Aluminum Chloride | Potassium Metal |
| Aluminum Sulfate | Potassium Sulfate |
| Calcium Carbide | Sodium Bicarbonate |
| Calcium Chloride | Sodium Carbonate (Soda Ash) |
| Chlorine | Sodium Chloride |
| Hydrochloric Acid | Sodium Dichromate |
| Hydrogen Peroxide | Sodium Hydroxide |
| [4475] Hydrofluoric Acid | Sodium Metal |
| Calcium Oxide and Calcium Hydroxide (Lime) | Sodium Silicate |
| Nitric Acid | Sodium Sulfate |
| Potassium Chromates | Sodium Sulfite |
| Potassium Hydroxide | Sulfuric Acid |
| | Titanium Dioxide |

**Categorization and Waste Load Characterization**

The effluent limitation guidelines and standards of performance proposed herein were developed in the following manner. The point source category was first categorized for the purpose of determining whether separate limitations and standards are



appropriate for different segments within a point source category. Such subcategorization was based upon raw material used, product produced, manufacturing process employed, and other factors. The raw waste characteristics for each subcategory were then identified. This included an analysis of (1) the source and volume of water used in the process employed and the sources of waste and waste waters in the plant; and (2) the constituents of all waste waters including harmful constituents and other constituents which result in degradation of the receiving water. The constituents of waste waters which should be subject to effluent limitations guidelines and standards of performance were identified.

The full range of control and treatment technologies existing within each subcategory was identified. This included an identification of each control and treatment technology, including both inplant and end-of-process technologies, which are existent or capable of being designed for each subcategory. It also included an identification of the amount of constituents (including thermal) and the characteristics of pollutants resulting from the application of each of the treatment and control technologies. The problems, limitations and reliability of each treatment and control technology were also identified. In addition, the non-water quality environmental impact, such as the effects of the application of such technologies upon other pollution problems, including air, solid waste, noise and radiation were also identified. The energy requirements of each of the control and treatment technologies were identified as well as the cost of the application of such technologies.

Cost information contained in this report was obtained drectly from industry during exemplary plant visits, from engineering firms and equipment suppliers, and from the literature. The information obtained from the latter three sources has been used to develop general capital, operating and overall costs for each treatment and control method. Costs have been put on a consistent industrial calculation basis of ten year straight line depreciation plus allowance for interest at six [4476] percent per year (pollution abatement tax free money) and inclusion of allowance for insurance and taxes for an overall

fixed cost amortization of fifteen percent per year. This generalized cost data plus the specific information obtained from plant visits was then used for cost effectiveness estimates in Section VIII and wherever else costs are mentioned in this report.

The data for identification and analyses were derived from a number of sources. These sources included EPA research information, published literature, qualified technical consultation, on-site visits and interviews at numerous inorganic chemical plants throughout the U.S., interviews and meetings with various trade associations, and interviews and meetings with various regional offices of the EPA. All references used in developing the guidelines for effluent limitations and standards of performance for new sources reported herein are included in Section XIII of this report.

### Exemplary plant selection

The following exemplary plant selection criteria were developed and used for the selection of exemplary plants.

(a) Discharge effluent quantities

Plants with low effluent quantities or the ultimate of no pollutants discharge were preferred. This minimal discharge may be due to reuse of water, raw material recovery and recycling, or to use of evaporation. The significant parameter was minimal waste added to effluent streams per weight of product manufactured. The amount of wastes considered here were those added to waters taken into the plant and then discharged.

(b) Effluent contaminant level

Preferred plants were those with lowest effluent contaminant concentrations and lowest total quantity of waste discharge per unit of product.

(c) Water management practices

Use of good management practices such as water re-use, planning and inplant water segregation, and the proximity of



cooling towers to operating units where airborne contamination of water can occur were considered.

(d) Land utilization

The efficiency of land use was considered.

(e) Air pollution and solid waste control

[4477] Exemplary plants must possess overall effective air and solid waste pollution control where relevant in addition to water pollution control technology. Care was taken to insure that all plants chosen have minimal discharges into the environment and that exemplary sites are not those which are exchanging one form of pollution for another of the same or greater magnitude.

(f) Effluent treatment methods and their effectiveness

Plants selected shall have in use the best currently available treatment methods, operating controls, and operational reliability. Treatment methods considered included basic process modifications which significantly reduce effluent loads as well as conventional treatment methods.

(g) Plant facilities

All plants chosen as exemplary had all the facilities normally associated with the production of the specific chemical(s) in question. Typical facilities generally were plants which have all their normal process steps carried out on-site.

### Plant management philosophy

Plants were preferred whose management insists upon effective equipment maintenance and good housekeeping practices. These qualities are best identified by a high operational factor and plant cleanliness.

(h) Geographic location

Factors which were considered are plants operating in close proximity to sensitive vegetation or in densely populated areas. Other factors such as land availability and differences in state and local standards were also considered.

(i) Raw materials

Differences in raw material purities were given strong consideration in cases (e.g., $TiO_2$) where the amounts of wastes are strongly influenced by the purity of raw materials used. Several plants using different grades of raw materials were considered for those chemicals for which raw material purity is a determining factor in waste control. Chemicals where this was found to be of importance are titanium dioxide, aluminum sulfate, the dichromates, and to a lesser extent chlorine and sodium chloride.

(j) Diversity of processes

On the basis that all of the above criteria are met, consideration was given to installations having a multiplicity of manufacturing processes. [4478] However, for sampling purposes, the complex facilities chosen were those for which the wastes could be clearly traced through the various treatment steps.

(k) Production

On the basis that other criteria are equal, consideration was given to the degree of production rate scheduled on water pollution sensitive equipment.

(l) Product purity

For cases in which purity requirements play a major role in determining the amounts of wastes to be treated and the degree of water recycling possible, different product grades were considered for subcategorization.

### Sampling of Exemplary Plants

The details of how the exemplary plants were sampled and the analytical techniques employed are fully discussed in Section V, of this report.

## GENERAL DESCRIPTION OF THE INDUSTRY

Brief descriptions of each of the twenty-five chemical industries are presented in subsequent subsections. Process flow sheets for the industries may be found in Sections IV and V.



Production tonnages reported for 1971 were taken from Current Industrial Reports, Inorganic Chemicals, U.S. Bureau of Census, Series M28A(71)-14.(1) These values are summarized in Table I, at the end of this section. Also included are production tonnages for years prior and subsequent to 1971, where available, and the number of plants producing each chemical.

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[4861]

THURSDAY, OCTOBER 11, 1973

WASHINGTON, D.C.

Volume 38 ■ Number 196

PART II

**ENVIRONMENTAL PROTECTION AGENCY**

■

**Effluent Limitations Guidelines and Standards of Performance and Pretreatment**

**Proposed Rules**



[4862] **ENVIRONMENTAL PROTECTION AGENCY**

**[40 CFR Part 415]**

## EFFLUENT LIMITATIONS GUIDELINES AND STANDARDS OF PERFORMANCE AND PRETREATMENT FOR INORGANIC CHEMICALS MANUFACTURING POINT SOURCE CATEGORY

### Notice of Proposed Rulemaking

Notice is hereby given that effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for new sources set forth in tentative form below are proposed by the Environmental Protection Agency (EPA) for the aluminum chloride production subcategory (Subpart A), the aluminum sulfate production subcategory (Subpart B), the calcium carbide production subcategory (Subpart C), the calcium chloride production subcategory (Subpart D), the calcium oxide and hydroxide production subcategory (Subpart E), the chlorine and sodium or potassium hydroxide production subcategory (Subpart F), the hydrochloric acid production subcategory (Subpart G), the hydrofluoric acid production subcategory (Subpart H), the hydrogen peroxide production subcategory (Subpart I), the nitric acid production subcategory (Subpart J), the potassium metal production subcategory (Subpart K), the potassium dichromate production subcategory (Subpart I), the potassium sulfate production subcategory (Subpart M), the sodium bicarbonate production subcategory (Subpart N), the sodium carbonate production subcategory (Subpart O), the sodium chloride production subcategory (Subpart P), the sodium dichromate and sodium sulfate production subcategory (Subpart Q), the sodium metal production subcategory (Subpart R), the sodium silicate production subcategory (Subpart S), the sodium sulfite production subcategory (Subpart T), the sulfuric acid production subcategory (subpart U), and titanium dioxide production subcategory (Subpart V), of the inorganic chemicals manufacturing category of point sources pursuant to sections 301, 304(b) and (c), 306(b) and 307(c) of the Federal Water

Pollution Control Act, as amended (33 U.S.C. 1251, 1311, 1314 (b) and (c), 1316(b) and 1317(c); 86 Stat. 816 et seq.; Pub. L. 92-500) (the "Act").

(a) *Legal authority.* (1) *Existing point sources.* Section 301(b) of the Act requires the achievement by not later than July 1, 1977, of effluent limitations for point sources, other than publicly owned treatment works, which require the application of the best practicable control technology currently available as defined by the Administrator pursuant to Section 304(b) of the Act. Section 301(b) also requires the achievement by not later than July 1, 1983, of effluent limitations for point sources, other than publicly owned treatment works, which require the application of best available technology economically achievable which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, as determined in accordance with regulations issued by the Administrator pursuant to section 304(b) of the Act.

Section 304(b) of the Act requires the Administrator to publish regulations providing guidelines for effluent limitations setting forth the degree of effluent reduction attainable through the application of the best practicable control technology currently available and the degree of effluent reduction attainable through the application of the best control measures and practices achievable including treatment techniques, process and procedure innovations, operating methods, and other alternatives. The regulations proposed herein set forth effluent limitations guidelines, pursuant to section 304(b) of the Act, for the aluminum chloride production subcategory (Subpart A), the aluminum sulfate production subcategory (Subpart B), the calcium carbide production subcategory (Subpart C), the calcium chloride production subcategory (Subpart D), the calcium oxide and hydroxide production subcategory (Subpart E), the chlorine and sodium or potassium hydroxide production subcategory (Subpart F), the hydrochloric acid production subcategory (Subpart G), the hydrofluoric acid production subcategory (Subpart H), the hydrogen peroxide production subcategory (Subpart I), the nitric



acid production subcategory (subpart J), the potassium metal production subcategory (Subpart K), the potassium dichromate production subcategory (Subpart L), the potassium sulfate production subcategory (Subpart M), the sodium bicarbonate production subcategory (Subpart N), the sodium carbonate production subcategory (Subpart O), the sodium chloride production subcategory (Subpart P), the sodium dichromate and sodium sulfate production subcategory (Subpart Q), the sodium metal production subcategory (Subpart R), the sodium silicate production subcategory (Subpart S), the sodium sulfite production subcategory (Subpart T), the sulfuric acid production subcategory (Subpart U), and titanium dioxide production subcategory (Subpart V), of the inorganic chemicals manufacturing category.

(2) *New sources.* Section 306 of the Act requires the achievement by new sources of a Federal standard of performance providing for the control of the discharge of pollutants which reflects the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants.

Section 306(b)(1)(B) of the Act requires the Administrator to propose regulations establishing Federal standards of performance for categories of new sources included in a list published pursuant to section 306(b)(1)(A) of the Act. The Administrator published in the FEDERAL REGISTER of January 16, 1973, (38 FR 1624) a list of 27 source categories, including the inorganic chemicals manufacturing category. The regulations proposed herein set forth the standards of performance applicable to new sources for the alumnium chloride production subcategory (Subpart A), the aluminum sulfate production subcategory (Subpart B), the calcium carbide production subcategory (Subpart C), the calcium chloride production subcategory (Subpart D), the calcium oxide and hydroxide production subcategory (Subpart E), the chlorine and sodium or potassium hydroxide production subcategory (Subpart F), the hydro-

chloric acid production subcategory (Subpart G), the hydrofluoric acid production subcategory (Subpart H), the hydrogen peroxide production subcategory (Subpart I), the nitric acid production subcategory (Subpart J), the potassium metal production subcategory (Subpart K), the potassium dichromate production subcategory (Subpart L), the potassium sulfate production subcategory (Subpart M), the sodium bicarbonate production subcategory (Subpart N), the sodium carbonate production subcategory (Subpart O), the sodium chloride production subcategory (Subpart P), the sodium dichromate and sodium sulfate production subcategory (Subpart Q), the sodium metal production subcategory (Subpart R), the sodium silicate production subcategory (Subpart S), the sodium sulfite production subcategory (Subpart T), the sulfuric acid production subcategory (Subpart U), and titanium dioxide production subcategory (Subpart V), of the inorganic chemicals manufacturing category.

Section 307(c) of the Act requires the Administrator to promulgate pretreatment standards for new sources at the same time that standards of performance for new sources are promulgated pursuant to section 306. Sections 415.15, 415.25, and 415.35, 415.45, 415.55, 415.65, 415.75, 415.85, 415.95, 415.105, 415.115, 415.125, 415.135, 415.145, 415.155, 415.165, 415.175, 415.185, 415.195, 415.205, 415.215, 415.225, proposed below provide pretreatment standards for new sources within the aluminum chloride production subcategory (Subpart A), the aluminum sulfate production subcategory (Subpart B), the calcium carbide production subcategory (Subpart C), the calcium chloride production subcategory (Subpart D), the calcium oxide and hydroxide production subcategory (Subpart E), the chlorine and sodium or potassium hydroxide production subcategory (Subpart F), the hydrochloric acid production subcategory (Subpart G), the hydrofluoric acid production subcategory (Subpart H), the hydrogen peroxide production subcategory (Subpart I), the nitric acid production subcategory (Subpart J), the potassium metal production subcategory (Subpart K), the potassium dichromate production subcategory (Subpart L), the potassium sulfate production subcategory



(Subpart M), the sodium bicarbonate production subcategory (Subpart N), the sodium carbonate production subcategory (Subpart O), the sodium chloride production subcategory (Subpart P), the sodium dichromate and so- [4863] dium sulfate production subcategory (Subpart Q), the sodium metal production subcategory (Subpart R), the sodium silicate production subcategory (Subpart S), the sodium sulfite production subcategory (Subpart T), the sulfuric acid production subcategory (Subpart U), and titanium dioxide production subcategory (Subpart V), of the inorganic chemicals manufacturing category.

Section 304(c) of the Act requires the Administrator to issue to the States and appropriate water pollution control agencies information on the processes, procedures or operating methods which result in the elimination or reduction of the discharge of pollutants to implement standards of performance under Section 306 of the Act. The Development Document referred to below provides pursuant to Section 304(c) of the Act, information on such processes, procedures of operating methods.

(b) Summary and basis of proposed effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for new sources. (1) *General methodology.* The effluent limitations guidelines and standards of performance proposed herein were developed in the following manner. The point source category was first studied for the purpose of determining whether separate limitations and standards are appropriate for different segments within the category. This analysis included a determination of whether differences in raw material used, product produced, manufacturing process employed, age, size, waste water constituents and other factors require development of separate limitations and standards for different segments of the point source category. The raw waste characteristics for each such segment were then identified. This included an analysis of (1) the source, flow and volume of water used in the process employed and the sources of waste and waste waters in the operation and (2) the constituents of all waste water. The constituents

of the waste waters which should be subject to effluent limitations guidelines and standards of performance were identified.

The control and treatment technologies existing within each segment were identified. This included an identification of each distinct control and treatment technology, including both in-plant and end-of-process technologies, which are existent or capable of being designed for each segment. It also included an identification of, in terms of the amount of constituents and the chemical, physical, and biological characteristics of pollutants, the effluent level resulting from the application of each of the technologies. The problems, limitations and reliability of each treatment and control technology were also identified. In addition, the non-water quality environmental impact, such as the effects of the application of such technologies upon other pollution problems, including air, solid waste, noise and radiation, were identified. The energy requirements of each control and treatment technology were determined as well as the cost of the application of such technologies.

The information, as outlined above, was then evaluated in order to determine what levels of technology constitute the "best practicable control technology currently available," "the best available technology economically achievable" and the "best available demonstrated control technology, processes, operating methods, or other alternatives." In identifying such technologies, various factors were considered. These included the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application, the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact (including energy requirements) and other factors.

The data upon which the above analysis was performed included EPA permit applications, EPA sampling and inspections, consultant reports, and industry submissions.

The pretreatment standards proposed herein are intended to be complementary to the pretreatment standards proposed



for existing sources under Part 128 of 40 CFR. The basis for such standards are set forth in the FEDERAL REGISTER of July 19, 1973, 38 FR 19236. The provisions of Part 128 are equally applicable to sources which would constitute "new sources," under section 306 if they were to discharge pollutants directly to navigable waters, except for § 128.133. That section provides a pretreatment standard for "incompatible pollutants" which requires application of the "best practicable control technology currently available," subject to an adjustment for amounts of pollutants removed by the publicly owned treatment works. Since the pretreatment standards proposed herein apply to new sources, §§ 415.15, 415.25, 415.35, 415.45, 415.55, 415.65, 415.75, 415.85, 415.95, 415.105, 415.115, 415.125, 415.135, 415.145, 415.155, 415.165, 415.175, 415.185, 415.195, 415.205, 415.215, and 415.225 below amend § 128.133 to require application of the standard of performance for new sources rather than the "best practicable" standard applicable to existing sources under sections 301 and 304(b) of the Act.

(2) Summary of conclusions with respect to the inorganic chemicals manufacturing category of point sources.

(i) *Categorization.* For the purpose of establishing effluent limitations guidelines and standards, the inorganic chemicals manufacturing category was divided into twenty-two discrete subcategories consistent with the specific chemicals produced. Various other means to group the twenty-two chemicals into subcategories were investigated. Factors such as raw waste loads, water requirements, and manufacturing processes do not establish a sound basis for subcategorization because the raw materials used and production processes employed are specific for each chemical. Although certain waste water constituents may be reduced to similar concentrations for selected chemical groupings, the quantities of pollutants discharged based on production volume are different for each chemical because of specific water requirements.

Thus, for the purpose of these regulations, a subcategory was established for each chemical product. This subcategorization scheme simplifies the application of effluent limitations guidelines because inorganic chemical plants vary significantly in

terms of product mix. This scheme also reflects differences in the treatability of waste streams due to the manufacturing process variables unique to each chemical.

(ii) Process descriptions, water use and waste water characterization for each chemical subcategory

(1) Aluminum chloride. Anhydrous aluminum chloride is manufactured by the reaction of gaseous chlorine with molten aluminum metal. Chlorine is introduced below the surface of the molten aluminum. The aluminum chloride sublimes and is collected by condensation.

No water is used in the process except in cases where a wet scrubber is used to eliminate the discharge of unreacted chlorine gas to the atmosphere. The wet scrubbing solution may be sold as a byproduct or recycled after the precipitation of aluminum salts.

(2) Aluminum sulfate. Aluminum sulfate is produced by the reaction of bauxite ore with concentrated sulfuric acid. Ground ore and acid are reacted in a digester, yielding aluminum sulfate in solution plus muds and insoluble waste materials. These waste products are removed during sedimentation and filtration. The filtered product liquor is either shipped as liquid aluminum sulfate or evaporated to recover a solid product. Waste muds may be ponded to settle the solids and the clear water may be recycled.

(3) Calcium carbide. Calcium carbide is prepared by the reaction of calcium oxide with carbon in a high temperature furnace. The product is then cooled, crushed, screened, packaged, and shipped. The only wastes from this process are airborne dusts from the furnace coke dryer, from screening and from the packing station. All collected dusts may be returned to the furnace.

(4) Calcium chloride. The limitations presented herein apply only to the brine extraction process of manufacturing calcium chloride. Salt is solution-mined and the resulting brines concentrated to remove sodium chloride by precipitation and then purified by the addition of other materials to precipitate sodium, potassium, and magnesium ions. The process wastes are weak brine solutions from the blowdown of the various brine purification steps.



(5) Calcium oxide and hydroxide. Calcium oxide and hydroxide are produced by calcining various types of limestone in continuous vertical or rotating kilns. This is a dry process, and the only waterborne wastes result from wet scrubbing of the gaseous kiln effluent to remove particulates.

[4864] After calcination, the calcium oxide and hydroxide are cooled and packaged as a lump product or crushed and screened to yield a pulverized product.

(6) Chlorine and sodium or potassium hydroxide. The major chlorine production results from the electrolysis of sodium or potassium brines. Sodium hydroxide or potassium hydroxide are produced as byproducts. Two types of electrolysis cells may be used.

In the mercury cell process, the raw material is dissolved and purified by addition of barium carbonate, soda ash, and lime to remove magnesium, calcium, and sulfate ion prior to electrolysis. The insolubles formed are filtered from the brine, which is fed into a mercury cell, where chlorine is liberated at one electrode and a sodium-mercury amalgam is formed at the other.

The chlorine formed is cooled, dried in a sulfuric acid stream, purified to remove chlorinated organics, compressed and sold. The mercury-sodium amalgam formed is treated with water to decompose the amalgam. Sodium hydroxide and hydrogen are formed in the reaction. The mercury liberated is returned to the electrolysis cells. The hydrogen is cooled, scrubbed to remove traces of mercury, compressed and sold.

The sodium hydroxide formed during the decomposition of the amalgam is filtered, concentrated, and sold. Waste brines emerging from the electrolysis cells are concentrated and recycled.

In the diaphragm cell process, chloride brines are first purified and then electrolyzed in a diaphragm cell. Chlorine,

formed at one electrode, is collected, cooled, dried with sulfuric acid, purified, compressed, and liquefied. At the other electrode, sodium hydroxide is formed and hydrogen is liberated. The hydrogen is cooled, purified, and compressed. The sodium hydroxide formed, along with unreacted brine, is evaporated to 50 percent concentration. During the partial evaporation, most of the unreacted sodium chloride precipitates and is removed by filtration for recycle to the process. The sodium hydroxide solutions are further evaporated to yield solid products.

(7) Hydrochloric acid. Hydrochloric acid may be manufactured by two major processes. The process considered herein is direct reaction of chlorine with hydrogen. The other major source of production is as a byproduct of organic chlorination reactions.

In production by direct reaction, hydrogen and chlorine gas are reacted in a vertical burner. The product, hydrogen chloride, is cooled and then absorbed in water. No waterborne wastes are generated during normal operation. The start-up wastes may be treated and reused.

(8) Hydrofluoric acid. Hydrofluoric acid is manufactured by reacting the mineral fluorspar ($CaF_2$) with concentrated sulfuric acid in a furnace. The hydrofluoric acid leaves the furnace as a gas, is cooled and absorbed in water prior to purification. In the purification system, the crude acid is redistilled and either absorbed in water or compressed for sale as anhydrous hydrofluoric acid.

(9) Hydrogen peroxide. Hydrogen peroxide is manufactured by three different processes: (1) an electrolytic process; (2) oxidation of alkyl hydroanthraquinones; and (3) as a byproduct in the manufacture of acetone from isopropyl alcohol. The limitations presented herein apply only to the first two processes.

In the electrolytic process, a solution of ammonium (or other) bisulfate is electrolyzed, yielding ammonium persulfate at the anode and hydrogen gas at the cathode. The persulfate is then reacted with water to yield hydrogen peroxide and



the original bisulfate. In the oxidation process, alkylanthraquinone is reduced by hydrogen over a supported metal catalyst (typically palladium on alumina), yielding the corresponding alkylhydroanthraquinone. This, in turn, is oxidized by oxygen in a forced gas stream to produce the original alkylanthraquinone plus hydrogen peroxide. The hydrogen peroxide is extracted with water and the alkylanthraquinone is recycled.

(10) Nitric acid. Nitric acid is produced by catalytic oxidation of ammonia to nitrogen dioxide which is reacted with water vapor under pressure to obtain the acid. In the process, compressed, purified, and preheated air and anhydrous ammonia are mixed and passed over a platinum-rhodium wire gauge catalyst. The resultant mixture of nitric oxide and excess air is introduced into a stainless steel absorption tower where the nitric oxide is oxidized. The resulting nitrogen dioxide is then reacted with water. The only process wastes from a well-designed plant are weak nitric acid solutions which may be recycled.

(11) Potassium metal. Potassium is produced by the reaction of potassium chloride with sodium vapors. No water is used in this manufacturing process. The potassium chloride is melted in a gas-fired melt pot and is fed to an exchange column. The molten potassium chloride is contacted by ascending sodium vapors, yielding sodium chloride and elemental potassium. The sodium chloride is normally recovered and sold.

(12) Potassium dichromate. Most potassium dichromate manufactured in the U.S. is made by reacting a sodium dicromate dihydrate solution with potassium chloride. The potassium dichromate is crystallized from solution resulting in a relative pure product which requires only removal of water prior to sizing and packaging. The process water may be recycled back to the initial reaction tank.

(13) Potassium sulfate. Potassium sulfate is prepared by treating dissolved langbenite ore ($K_2SO_4 \bullet 2MgSO_4$), a naturally occurring potassium magnesium sulfate mineral, with potassium chloride. The ore is crushed and dissolved in water to which potassium chloride is added. Partial evaporation of

the solution results in selective precipitation of potassium sulfate. This is recovered by centrifugation or filtration, dried and sold. The resulting brine liquor may be held in evaporation ponds, reused as process water, or evaporated to dryness to recover magnesium chloride.

(14) Sodium bicarbonate. Sodium bicarbonate is made by reacting sodium carbonate with water and carbon dioxide under pressure. The bicarbonate precipitates from solution and is centrifuged or filtered, washed, dried, and packaged. Treated process waste water may be recycled after concentration with respect to sodium carbonate.

(15) Sodium carbonate. Sodium carbonate (soda ash) is produced by the Solvay process or by the mining of trona (sodium sesquicarbonate) in California and Wyoming.

The Solvay process involves a reaction of ammonia and carbon dioxide in a brine solution to yield sodium bicarbonate. This is converted to the carbonate by heating. Ammonia may be recovered by adding slaked lime to the used liquor. Large quantities of dissolved and suspended solids are generated by this process. A typical effluent after sedimentation and neutralization contains over 100,000 mg/l of dissolved materials (mainly NaCl and $CaCl_2$).

The mining of trona currently accounts for approximately forty percent of sodium carbonate production.

(16) Sodium chloride. Sodium chloride may be produced by solution brine mining, by solar evaporation of sea water, or by conventional mining of rock salt. The regulations presented herein apply to the first two processes. Solar evaporation to produce sodium chloride consists of holding sea water in large ponds where the water is allowed to evaporate. After saturation is reached, the brine is fed to a crystallizer where sodium chloride is precipitated. The brine solution may be further treated to recover potassium and magnesium salts. Solution-mining of brines involves pumping water into an underground salt deposit and recovering the brine solution for treatment. The specific treatment is variable depending on the nature of the impurities present. Typically, the brine may be first



aerated to remove hydrogen sulfide and, in many cases, small amounts of chlorine are added to complete sulfide removal and oxidize all iron salts present to the ferric state. The brine is then pumped to settling tanks where it is treated with calcium carbonate and sodium hydroxide to remove most of the calcium, magnesium and iron present as insoluble salts. After clarification to remove these insolubles, the brine is then sent to multiple effect evaporators. As water is removed, salt crystals form and are removed as a slurry. After screening to remove lumps, the slurry is then washed with fresh brine. The washed slurry is filtered, the mother liquor is returned to the evaporators and the salt crystals from the filter are dried, screened, and packaged.

Waste water results from the multiple evaporators and dryers and from the brine purification processes.

(17) Sodium dichromate and sodium sulfate. Sodium dichromate and sodium sulfate are prepared by calcining a mix- [4865] ture of chrome ore, sodium carbonate, and lime, followed by leaching the soluble chromates with water. Calcium salts are precipitated by pH adjustment and then removed along with iron oxide. The leachate containing the soluble chromate is then acidified with sulfuric acid, forming sodium dichromate and sodium sulfate. The dichromate solution is partially evaporated and fed to a crystallizer where sodium dichromate crystals are formed. The crystals are centrifuged to remove excess water, then dried and packaged.

The sulfate is precipitated following the partial evaporation process. The leachate is filtered and dried. The insoluble residue remaining from the leaching operation may be recycled to leach out additional material.

(18) Sodium metal. The process used to manufacture sodium metal, commonly called the Downs cell process, consists of the electrolysis of fused sodium chloride at about 600° C. The salt is mixed with alkali fluorides and calcium chloride to sufficiently lower the melting point, and the charge is then fused in a Downs cell. Molten sodium formed at the cathode is transported to a collection vessel, from which the metal is

withdrawn from the bottom, filtered, and packaged in the form of bricks of various sizes.

It is essentially a dry process. However, water-borne wastes are generated during cleanout and washdown of cells when the electrolyte is replenished, from scrubbing chlorine tail gases and also from drying the chlorine with sulfuric acid.

(19) Sodium silicate. The production of sodium silicate generally involves reacting soda ash or anhydrous sodium hydroxide with silica. The product is then dissolved in water under pressure to prepare sodium silicate solutions. The water-borne wastes include unreacted silica, sodium hydroxide and sodium silicate. The pollutants are the result of tank washdowns, product shock cooling with water and wet scrubbers. These wastes may be ponded to settle the solids and the clear liquid may be partially recycled and partially pond evaporated. The waste solution may be further reacted with sodium hydroxide to manufacture metasilicates which may be isolated by evaporation and sold.

(20) Sodium sulfite. Sodium sulfite is manufactured by reacting sulfur dioxide with soda ash. The sulfur dioxide gas is fed into a solution of sodium carbonate until the product is acidic. The solute consists mainly of sodium bisulfate which is converted into sodium sulfite by the further addition of soda ash. The solution is boiled to evolve carbon dioxide. The crude sulfite is filtered to remove insolubles, crystallized and dried.

The wastes consist of sulfides from the purification steps, and sulfites and sulfates which result from periodic washdowns. The sulfite may be oxidized to sulfate by aeration and suspended solids removed by filtration.

(21) Sulfuric acid. Sulfuric acid is manufactured primarily by the contact process which involves the burning of sulfur to sulfur dioxide. The sulfur dioxide is catalytically oxidized to sulfur trioxide which is reacted with water to yield sulfuric acid. Within the contact process there are three basic types of plants: (i) Double absorption plants use paired sulfur trioxide absorption towers and catalyst beds in series to maxi-



mize conversion of sulfur dioxide so that tail gas scrubbers are not required; (ii) single absorption plants use single towers and catalyst beds and tail gases frequently have to be scrubbed to remove sulfur oxides; and (iii) spent acid plants use spent sulfuric acid in place of, or in addition to, sulfur as a raw material.

The regulations presented herein apply only to the first two plant types. In the double absorption contact process, sulfur is burned to yield sulfur dioxide which is then passed through a catalytic converter with air to produce sulfur trioxide. The sulfur trioxide is then absorbed in 95–97 percent sulfuric acid. The gases emerging from the absorber are then fed to a second converter to oxidize the remaining sulfur dioxide to sulfur trioxide, which is then absorbed in a second absorption tower. The tail gases are vented to the atmosphere. They are sufficiently depleted of sulfur oxides so that gas scrubbers are not required. Prevention of leaks and spills can eliminate the discharge of process waste water pollutants.

The single absorption process differs from that previously described only in the arrangement of the converters and absorbers. The rest of the process is the same. For the single absorption process, the sulfur dioxide is passed through one or more converters and then into one or more absorbers prior to venting to the atmosphere. These tail gases usually need to be scrubbed and the waste water treated.

(22) Titanium dioxide. Titanium dioxide may be manufactured using either the chloride or sulfate process. In the sulfate process, ground ilmenite ore ($FeO\ TiO_2$) is digested with concentrated sulfuric acid at high temperatures. The acid used is normally about 150 percent of the weight of the ore. In some cases, small amounts of antimony trioxide are also added. The resulting sulfates of titanium and iron are then leached from the reaction mass with water and any ferric salts present are reduced to ferrous salts by treatment with iron scrap to prevent coloration of the titanium dioxide.

After these operations, the solutions are clarified, cooled and sent to a vacuum crystallizer. There, ferrous sulfate crystallizes

out and is separated from the mother liquor by centrifugation. This material is either sold or disposed of as a waste.

The mother liquor is clarified by filtration after addition of filter aids and further concentrated by vacuum evaporation. Seed crystals or other nucleating agents are added and then concentrated liquor is treated with steam to hydrolyze the titanium sulfate present. This precipitates as acidic hydrated titanium. The precipitate is collected by filtration, washed several times and calcined at 900–950°C to yield titanium dioxide. This calcined product is ground, and further processed to yield a purer product.

In the manufacture of titanium dioxide by the chloride process, ores containing titanium dioxide, iron, aluminum, vanadium, plus other minor trace impurities, are dried to remove moisture, then fed up to a high temperature fluidized bed chlorinator. Coke needed to promote chlorination is also dried and fed to the reactor.

The gaseous reaction products contain titanium tetrachloride, ferrous and ferric chlorides, carbon monoxide and dioxide, hydrogen chloride (from the hydrogen in the coke and ore, etc.), entrained coke and ore, plus all other chlorinated impurities in the ore. These pass to a long cooling train which cools the product stream so that all of the iron chlorides and most of the remaining metal chlorides condense. Solids are separated from the gaseous titanium tetrachlorides by centrifugation or other mechanical means and slurred in water for discharge from the process as raw waste.

The remaining gaseous titanium tetrachloride is then condensed. Noncondensable reaction gases, containing small amounts of titanium tetrachloride, silicon tetrachloride and hydrogen chloride are water scrubbed, then vented.

Crude titanium tetrachloride is purified to remove traces of silicon, vanadium, iron, magnesium, manganese, aluminum, chromium, etc., by various techniques including distillation, absorption, ion exchange, and chemical precipitation with hydrogen sulfide, inorganic salts, or organic compounds. All methods yield a pure titanium tetrachloride fraction, and a



contaminant sludge which is slurred in water and discharged with the cooling tower waste.

The pure titanium tetrachloride is vaporized, superheated, and added to the oxidation reactor with hot air or oxygen to form a pure, finely divided, pigmentary titanium dioxide.

The oxidation reactor product stream, consisting primarily of chlorine, nitrogen, and suspended titanium dioxide is cooled and the titanium dioxide separated mechanically by means of cyclones, bag filters, or precipitators for further processing. Chlorine and nitrogen from the oxidation product stream are fed to the chlorinator with makeup chlorine to produce more titanium tetrachloride. The recovered pigment is calcined and surface treated to impact desirable optical or physical properties. The titanium dioxide is ground to submicron sized particles, and packed as finished product.

(iii) Control and treatment technology for the inorganic chemicals manufacturing category.

Although waste effluents from inorganic chemical plants widely differ in both chemical nature and raw waste loadings, many pollution control techniques and treatment processes are common throughout the industry. Good control and containment practices may significantly reduce the quantity of water [4866] requiring treatment. These practices include monitoring techniques, safety practices, in-process abatement measures, spill and leak prevention, containment provisions, and segregation practices.

The purity of the raw materials used in many manufacturing processes significantly influences the waste load. Economics and availability, however, necessitate use of impure ores and technical grade reactants. These impurities may be controlled by washing, purifying, separating or beneficiating the raw materials prior to use in the manufacturing process. Treatment of ores may be done at the mining site where beneficiating waste may be controlled and handled with minimal pollutant effects.

Segregation of waste streams is an important waste control technique. Large uncontaminated water streams should be

separated from the process waste water to minimize the quantity of water requiring treatment.

Spills and leaks can be minimized by employing good housekeeping practices. Provisions for containment and isolation of occasional leaks and spills may be implemented.

Many waterborne wastes result from product losses in bottling, packing, or shipping areas. Good engineering and housekeeping may be used to reduce losses to a minimum.

In many manufacturing processes wet scrubbers are used to control air pollution. The scrubbing solution may generally be treated and reused or sold. In some cases, conversion to a dry abatement system is justified because of product recovery.

Unit operations and processes to treat process waste water streams in the inorganic chemicals manufacturing category include sedimentation, filtration, clarification, chemical treatments, centrifugation, ion exchange, carbon adsorption, and evaporation. The specific treatment technique and resulting effluent quality depend on the waste load generated by each manufacturing process.

Fourteen chemical manufacturing processes, including the production of aluminum chloride, aluminum sulfate, calcium carbide, hydrochloric acid, calcium oxide, potassium, potassium sulphate, sodium bicarbonate, sodium chloride (by the solar evaporation process), sodium silicate, and sulfuric acid, generate relatively small quantities of waste water. The process waste streams generally may be treated and recycled, reused, evaporated for product recovery, or sold.

The following chemical processes generate waste streams which require treatment to reduce quantities of suspended solids. They include calcium chloride production by solution brine-mining, hydrogen peroxide production by the organic process, sodium production, sodium chloride production by solution-mining and sodium carbonate production by the Solvay process. Treatment generally consists of various liquid-solid separation operations including sedimentation and filtrations to reduce effluent concentrations of suspended solids to 25 mg/l.



Neutralization of acidic or alkaline streams is required. Recycle and reuse of various waste streams are possible. Additional treatment and in-process changes (replacement of barometric condensers with noncontact heat exchangers, for example) make chemical production feasible with no discharge of process waste water pollutants for all processes except soda ash production. Additional treatment of soda ash waste will reduce the suspended solids concentration to 15 mg/l.

The remaining manufacturing processes, hydrogen peroxide production by the electrolytic process, sodium dichromate and sodium sulfate production, chlor-alkali facilities using either the diaphragm or mercury cell process and titanium dioxide production by the chloride or sulfate process, require treatment to reduce suspended solids concentrations. In addition, the effluent contains dissolved metals which are present in potentially harmful quantities. The presence of these pollutants, including mercury, lead, chromium and other metals, necessitates additional treatment specific for the potentially harmful pollutant present. Cyanide solutions from the electrolytic process to manufacture hydrogen peroxide may be passed through an ion exchange system and oxidized to a cyanate solution. Chloralkali plants using the mercury cell process may treat mercury-containing streams with sodium sulfide. Lead discharges from the diaphragm cell process may be eliminated by use of stable metal anodes. Hexavalent chromium resulting from the production of sodium dichromate may be reduced to trivalent chromate and precipitated with lime or caustic.

Additional treatment based on available technologies and various in-process modifications make it possible to produce the above named chemicals, except titanium dioxide, with no process waste water discharge. Although acid recovery and reuse is being investigated in the titanium dioxide production process, it has not been demonstrated in large scale operation. Additional treatment will reduce the effluent suspended solids concentration to 15 mg/l.

(iv) Cost estimates and economic impact for control of waste water pollutants in the inorganic chemicals manufacturing category.

Treatment costs to achieve the effluent reductions attainable by the application of the best practicable technology currently available and by application of the best available technology economically achievable are specific for each chemical manufacturing process. The annual cost to achieve the best practicable technology is less than $1/ton of product for fifteen major chemical manufacturing processes. The costs are less than $2/ton of product for five chemicals. Annual treatment costs are $14 and $12/ton of product for hydrofluoric acid and sodium dichromate. Because of the relatively high list price for these chemicals, the treatment costs represent only 2.5 and 3.3 percent of the current list price.

The manufacture of titanium dioxide generates waste water characterized by high pollutant concentrations. Currently only minor treatment is being practiced. The implementation of best practicable technology currently available results in an annual cost of $82/ton of product for the sulfate process and $37/ton of product for the chloride process. These figures are 14 and 6.4 percent of the current list price. Because substitute products may be used only on a limited basis and demand currently exceeds the supply, these costs may be passed on as price increases with minor economic impact.

The incremental annual costs to achieve the degree of reduction attainable by the application of best available technology economically achievable average less than two percent of the current list price for all products from these chemical manufacturing processes. On this basis, it is concluded that these guidelines and standards will have no major economic impact and that the guidelines and standards set forth in this regulation are economically achievable.

(v) Nonwater quality aspects of pollution control in the inorganic chemicals manufacturing category.

The large volumes of sludge generated by some treatment processes create a substantial solid waste problem. Landfill and lagoon sites of adequate size and good design are essential for treatment processes. Best practicable control technology and best available control technology as they are known today,



require disposal of the pollutants removed from waste waters in this industry in the form of solid wastes and liquid concentrates. In most cases these are non-hazardous substances requiring only minimal custodial care. However, some constituents may be hazardous and may require special consideration. In order to ensure long term protection of the environment from these hazardous or harmful constituents, special consideration of disposal sites must be made. All landfill sites where such hazardous wastes are disposed should be selected so as to prevent horizontal and vertical migration of these contaminants to ground or surface waters. In cases where geologic conditions may not reasonably ensure this, adequate legal and mechanical precautions (e.g., impervious liners) should be taken to ensure long term protection to the environment from hazardous materials. Where appropriate the location of solid hazardous materials disposal sites should be permanently recorded in the appropriate office of legal jurisdiction. Ocean disposal and deep-well injection may be practiced only under strictly regulated conditions, consistent with the requirements of Federal and State laws.

The inorganic chemicals manufacturing category has large energy requirements for furnaces, kilns, calciners, distillations columns, evaporators, and other common equipment. In contrast, application of the suggested treatment practices consumes less than one percent of this amount.

No significant noise or air pollution problems are expected to result because [4867] of the application of water pollution control equipment.

The report entitled "Development Document for Proposed Effluent Limitations Guidelines and News Source Performance Standards for the major inorganic products Segment of the Inorganic Chemicals Manufacturing Point Source Category" details the analysis undertaken in support of the regulations being proposed herein and is available for inspection in the EPA Information Center, Room 227, West Tower, Waterside Mall, Washington, D.C., at all EPA regional offices, and at State water pollution control offices. A supplementary analysis prepared for EPA of the possible economic effects of the proposed

regulations is also available for inspection at these locations. Copies of both of these documents are being sent to persons or institutions affected by the proposed regulations, or who have placed themselves on a mailing list for this purpose (see EPA's Advance Notice of Public Review Procedures, 38 FR 21202, August 6, 1973). An additional limited number of copies of both reports are available. Persons wishing to obtain a copy may write the EPA Information Center, Environmental Protection Agency, Washington, D.C. 20460, Attention: Mr. Philip B. Wisman.

(c) Summary of public participation. Prior to this publication, the agencies and groups listed below were consulted and given an opportunity to participate in the development of effluent limitations guidelines and standards proposed for the phosphate manufacturing category. All participating agencies have been informed of project developments. An initial draft of the Development Document were sent to all participants and comments were solicited on that report. The following are the principal agencies and groups consulted: (1) Effluent Standards and Water Quality Information Advisory Committee (established under section 515 of the Act); (2) all State and U.S. Territory Pollution Control Agencies; (3) the Manufacturing Chemists' Association; (4) the Chlorine Institute; Puerto Rico Land Administration; (5) American Society of Mechanical Engineers; (6) American Society of Civil Engineers; (7) Hudson River Sloop Restoration, Inc.; (8) National Resource Defense Council; (9) Water Pollution Control Federation; (10) the National Wildlife Federation; and (11) Michigan Students Environmental Foundation.

The following organizations responded with comments: Department of Defense; Department of Commerce; Commonwealth of Kentucky; Department for Natural Resources and Environmental Protection; Texas Water Quality Board; Department of Natural Resources; State of Michigan Water Resources Commission; Michigan Student Environmental Confederation, Inc.; Allied Chemical Corporation; the Chlorine Institute, Inc.; American Cyanamid Company; E. I. duPont De Nemours & Company; FMC Corporation; Manufacturing



Chemists' Associations; and Monsanto Industrial Chemicals Company.

The primary issues raised in the development of these proposed effluent limitations guidelines and standards of performance and the treatment of these issues herein are as follows:

(1) The inorganic chemicals manufacturing category is very large and diverse. In establishing effluent guidelines it was necessary to consider numerous factors which may predicate varying the guidelines to accommodate differences in plant size, age, geographical location, manufacturing processes employed and product mix. Comments from various industrial concerns indicate that they feel these variables justify further segmentation of the industry. The key issue is the degree to which the inorganic chemicals manufacturing category should be segmented for the purpose of establishing effluent guidelines and standards of performance. One extreme is to establish one limitation for the entire industry. Examination of the dissimilarities in manufacturing processes and wasteloads generated for each chemical reveal that this approach is technically unsound. On the other extreme, each chemical plant is unique and presents specific treatment problems. If the regulations presented herein are to reflect every variation, it is necessary to have separate guidelines for each plant. This approach does not reflect the intent of the Act and is unworkable.

The approach selected was to examine all variables and segment the industry into workable subcategories consistent with these variations. Twenty-two subcategories have been established based on the chemical product manufactured. In cases where two dissimilar processes are used to manufacture the same product, separate limitations have been established within the subcategory.

While it is recognized that differences in plant age and size will affect the treatment costs to a certain degree, the limitations presented herein may be practicably achieved industry-wide.

Some plants use dry air pollution abatement systems whereas others employ wet scrubbers. Again, it is recognized that it is more difficult for plants using wet scrubbers to achieve the effluent limitations. However, this scrubbing solution may be treated and subsequently recycled or sold. In some cases, product recovery justifies conversion to a dry system.

Other variations, including quality of raw materials, product mix, and geographical locations, are addressed in the Development Document where alternative treatment schemes are presented to demonstrate industry-wide applicability.

(2) Some commentors criticized the methodology used in preparing the effluent limitations and standards of performance. The concept of basing standards on the exemplary plants was questioned. This approach was detailed in the legislative history of the Act and serves as a logical basis for developing guidelines based on best practicable technology currently available. In many cases in the inorganic chemical industry, only one or two plants were considered exemplary based on waste water treatment of effluents generated by the production of a given chemical. Industry representatives interpret "average of the best" to require the compilation of data from a wider segment of the industry. In many cases, however, only one or two plants were demonstrating exemplary treatment practices. Where this treatment was considered economically practicable and applicable industry-wide, it was selected as the basis for guidelines.

(3) Industry representatives and various government agencies questioned the appropriateness of establishing a 1977 standard for fourteen chemicals requiring a zero discharge of process waste water pollutants to navigable waters, when the Act lists this as a national goal to be achieved by 1983.

Technology based standards as detailed in Section 301, 304(b) and 306 require the maximum pollutant reductions prior to 1983 consistent with the economic and technological factors considered under Sections 304(b) and 306. This does not preclude the promulgation of a zero discharge standard for 1977.



All fourteen chemicals are currently being produced in exemplary plants with a zero discharge of process waste water pollutants. Zero discharge may be achieved for ten of the fourteen chemicals at an annual incremental cost of less than one percent of the list price. Three other chemicals may be manufactured with a zero discharge by spending less than four percent of the current list price. Sodium chloride production by brine-mining requires an expenditure of eleven percent of the list price. Because of the relatively low price, however, this results in a price increase of only 0.1 cents/lb of product which will not significantly impact the economy.

(4) Commentors expressed concern about an initial proposal to eliminate the discharge of process waste water pollutants from the Solvay process used to manufacture soda ash. This process generates extremely large quantities of pollutants, most of which are currently discharged with little treatment. An alternate process, mining trona, exists for producing soda ash. This mining operation is relatively clean and produces soda ash at an equitable price. (Shipping costs are offset by large operating costs for the Solvay process plants.) Currently forty percent of the soda ash manufactured in the United States results from mining trona, and production figures indicate that this percentage will continue to increase. There appears to be an ample supply of this ore, sufficient to accommodate the soda ash market for years to come.

It was concluded that no technology is available and economically achievable for the elimination of discharges from Solvay plants. Although the mining option exists, it was felt that Congress did not intend to eliminate large scale operations. The 1983, standard proposed herein requires implementation of the best available treatment technology which is economically achievable for Sol- [4868] vay plants. New source Solvay plants are required to achieve zero discharge of process waste water pollutants, but this will have no impact on existing facilities. It is recognized that this standard may well constitute a prohibition of construction of new Solvay process plants unless some radical new technology is developed. However, ample supplies of soda ash may be obtained by mining trona. More-

over the newest Solvay process plant was constructed in 1933 and there are no known plans to build any new Solvay plants.

(5) Industry felt that the cost data for pollution control equipment given in Section VIII of the Report is underestimated.

The cost information was obtained directly from industry during exemplary plant visits, from engineering firms and equipment suppliers, and from literature. The information obtained from the latter three sources was used to develop general capital, operating and overall costs of each treatment and control method. This data plus the specific information verified by plant visits was used to generate the cost effectiveness curves in Section VIII of the Development Document and wherever else costs are mentioned.

(6) Dissolved solids are presented in significant quantities in the effluent resulting from the manufacture of most inorganic chemicals. Initially, guidelines were proposed limiting the quantities of dissolved solids. Many comments detailed objections to limiting total dissolved solids. In many cases, discharged sulfates and chlorides caused no deleterious effects in receiving waters. The disposal methods for concentrated dissolved solids have large energy requirements. Considering the non-water quality impact and cost-benefit relationship, it was concluded that only harmful dissolved materials (mercury, lead, etc.) could be practicably limited by technology based standards.

(7) Various agencies expressed concern about the ultimate disposal methods for harmful solid materials including mercury, chromium, etc. As detailed in the Development Document, care must be taken to prevent future dissolution of these materials and subsequent pollution of navigable waters by run-off or ground water infiltration. These metals remain soluble and may be carried into ground water unless extraordinary measures are taken to prevent leaching. Ocean dumping and deep-well disposal are allowed only under strictly regulated conditions in accordance with the requirements of applicable Federal and State laws.



(8) Several comments question the economic feasibility of achieving the proposed limitations for chlor-alkali plants. Industry felt that a zero discharge of process waste water pollutants is impossible to achieve, and that further segmentation of the chlor-alkali industry based on size and product mix in individual plants is required.

The effluent limitations based on best practicable technology currently available are being achieved in three exemplary plants. Treatment for both the mercury cell and diaphragm cell chlor-alkali plant effluents consists of incinerating or landfilling chlorinated organic wastes, filtering and settling cell rebuilding wastes, ponding or returning brine purification muds to the brine cavity and partial recycle of the weak brine solutions. In the mercury cell process, curbing and collection of leaks and spills, followed by treatment with sodium sulfide, are required to reduce effluent mercury concentrations.

Although no plants are currently achieving no discharge of process waste water pollutants, the required technology is available and demonstrated. Annual incremental costs to achieve this level are less than one percent of the current list price. Available technology which will effect a zero discharge of pollutants consists of using the spent sulfuric acid solution for neutralization of other plant waste streams, sale as weak acid, sale to an acid regeneration plant for reprocessing or recycling after concentration. The hypochlorite waste from the tail gas scrubber may be treated and subsequently recycled, sold, or used to manufacture HCl. All weak brine solutions may be recycled to the process after extraction elimination of impurities. In the diaphragm cell process, the use of dimensionally stable anodes will eliminate the lead discharge.

(9) Many comments referred to cooling water, boiler blowdown waste water problems, and water supply waste water problems. These are to be dealt with later as a separate category. Any cooling water that picks up process related pollutants from leaks becomes process waste water. It is the responsibility of the plant to monitor cooling water streams for leaks, and to treat contaminated cooling water to the standards established for process waste water discharges.

(10) It has been pointed out by commenters that the economic impact analysis considered fully only 16 of the chemical commodities subject to this regulation. Because the remaining chemicals are largely interdependent with chemicals considered fully in the analyses or because the projected cost increase was a small percentage of the selling price, these chemicals did not appear to require a rigorous economic impact analysis. However, because of this comment, EPA is undertaking a further analysis of the economic impact of these regulations on the production of calcium chloride, sodium bicarbonate, sodium carbonate, sodium chloride, sodium metal, sodium silicate, sodium sulfite, and potassium sulfate. EPA requests comments and specific data on the possible economic impact of this proposed regulation on these chemicals.

Interested persons may participate in this rulemaking by submitting written comments in triplicate to the EPA Information Center, Environmental Protection Agency, Washington, D.C. 20460, Attention: Mr. Philip B. Wisman. Comments on all aspects of the proposed regulations are solicited. In the event comments are in the nature of criticisms as to the adequacy of data which is available, or which may be relied upon by the Agency, comments should identify and, if possible, provide any additional data which may be available and should indicate why such data is essential to the development of the regulations. In the event comments address the approach taken by the agency in establishing an effluent limitation guideline or standard of performance, EPA solicits suggestions as to what alternative approach should be taken and why and how this alternative better satisfies the detailed requirements of sections 301, 304(b), 306 and 307 of the Act.

A copy of all public comments will be available for inspection and copying at the EPA Information Center, Room 227, West Tower, Waterside Mall, 401 M Street, SW., Washington, D.C. A copy of preliminary draft contractor reports, the Development Document and economic study referred to above, and certain supplementary materials supporting the study of the industry concerned will also be maintained at this location for public review and copying. The EPA information regulation,



40 CFR Part 2, provides that a reasonable fee may be charged for copying.

All comments received within thirty days of publication of this notice in the FEDERAL REGISTER will be considered. Steps previously taken by the Environmental Protection Agency to facilitate public response within this time period are outlined in the advance notice concerning public review procedures published on August 6, 1973 (38 FR 21202).

Dated October 1, 1973.

RUSSELL E. TRAIN,
*Administrator.*

## PART 415—EFFLUENT LIMITATIONS GUIDELINES FOR EXISTING SOURCES AND STANDARDS OF PERFORMANCE AND PRETREATMENT STANDARDS FOR NEW SOURCES FOR THE INORGANIC CHEMICALS MANUFACTURING POINT SOURCE CATEGORY

### Subpart A—Aluminum Chloride Production Subcategory

Sec.

## Subpart B—Aluminum Sulfate Production Subcategory

Sec.



## Subpart C—Calcium Carbide Production Subcategory



## Subpart D—Calcium Chloride Production Subcategory





Sec.



## Subpart E—Calcium Oxide and Hydroxide Production Subcategory



## Subpart F—Chlorine and Sodium or Potassium Hydroxide Production Subcategory

Sec.



**Subpart G—Hydrochloric Acid Production Subcategory**



**Subpart H—Hydrofluoric Acid Production Subcategory**





Sec.



**Subpart I—Hydrogen Peroxide Production Subcategory**



**Subpart J—Nitric Acid Production Subcategory**

Sec.





Sec.

Sec.



**Subpart P—Sodium Chloride Production Subcategory**



**Subpart Q—Sodium Dichromate and Sodium Sulfate Production Subcategory**





Sec.



**Subpart R—Sodium Metal Production Subcategory**



**Subpart S—Sodium Silicate Production Subcategory**

## Subpart T—Sodium Sulfite Production Subcategory

Sec.



## Subpart U—Sulfuric Acid Production Subcategory



## Subpart V—Titanium Dioxide Production Subcategory





Sec.



## Subpart A—Aluminum Chloride Production Subcategory

### § 415.10 Applicability; description of aluminum chloride production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of aluminum chloride.

### § 415.11 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of aluminum chloride.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

### § 415.12 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged

after application of the best practicable technology currently available by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.13 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.14 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through ap- [4871] plication of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.15 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the act, for a source within the aluminum chloride subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title, except that for the purposes of this section, § 128.133 of this title shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131, of this title, pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.14, Part 415: *Provided*, That, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."



## Subpart B—Aluminum Sulfate Production Subcategory

### § 415.20 Applicability; description of aluminum sulfate production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of aluminum chloride.

### § 415.21 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of aluminum sulfate.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

### § 415.22 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.23 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.24 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.25 Pretreatment standards for sources.

The pretreatment standards under section 307(c) of the Act, for a source within the aluminum sulfate subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title, except that for the purposes of this section, § 128.133 of this title shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.24, Part 415 provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible



pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart C—Calcium Carbide Production Subcategory

### § 415.30 Applicability; description of calcium carbide production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of calcium carbide.

### § 415.31 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of calcium carbide.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

### § 415.32 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this subpart: there shall be no discharge of process waste water pollutants to navigable waters.

### § 415.33 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged

after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: there shall be no discharge of process waste water pollutants to navigable waters.

### § 415.34 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: there shall be no discharge of process waste water pollutants to navigable waters.

### § 415.35 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the calcium carbide subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128, of this title except that for the purposes of this section, § 128.133, shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131, of this title the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.34, Part 415 provided that, if the publicly owned treatment works which receives the pollutants is com- [4872] mitted, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."



## Subpart D—Calcium Chloride Production Subcategory

### § 415.40 Applicability; description of calcium chloride production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of calcium chloride by the brine extraction process.

### § 415.41 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of calcium chloride.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

(c) The term "product" shall mean calcium chloride.

(d) The following abbreviations shall have the following meanings: (1) kg shall mean kilogram(s); (2) kkg shall mean 1,000 kilograms; (3) lb shall mean pound(s); and (4) TSS shall mean total suspended nonfilterable solids.

### § 415.42 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this subpart:

| *Effluent Characteristic* | *Effluent Limitation* |
|---|---|
| TSS | Maximum for any one day 0.016 kg/kkg product (0.016 lb/1,000 lb). |

| *Effluent Characteristic* | *Effluent Limitation* |
|---|---|
| pH | Maximum average of daily values for any period of thirty consecutive days 0.0082 kg/kkg of product (0.0082 lb/1,000 lb), within the range 6.0 to 9.0. |

### § 415.43 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.44 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.45 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the calcium chloride subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title, except that for the purposes of this section, § 128.133 of this title, shall be amended to read as follows: "In addition to the prohibitions



set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in section 415.44, Part 415 provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart E—Calcium Oxide and Hydroxide Production Subcategory

### § 415.50 Applicability; description of calcium oxide and hydroxide production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of calcium oxide and hydroxide.

### § 415.51 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of lime.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

### § 415.52 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this

subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.53 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.54 Standards of performance for new sources.

The following limitations consitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.55 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the calcium oxide and hydroxide subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title except that for the purposes of this section, § 128.133 of this title shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.54, Part 415 provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."



## Subpart F—Chlorine and Sodium or Potassium Hydroxide Production Subcategory

### § 415.60 Applicability; description of the chlorine and sodium or potassium hydroxide production category.

The provisions of this subpart are applicable to discharges resulting from the production of chlorine and sodium or po- [4873] tassium hydroxide in chlor-alkali plants by the mercury cell process or by the diaphragm cell process.

### § 415.61 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of chlorine and sodium or potassium hydroxide.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

(c) The term "product" means chlorine.

(d) The following abbreviation shall have the following meanings: (1) kg shall mean kilogram(s); (2) kkg shall mean 1000 kilograms; (3) lb shall mean pound(s); (4) TSS shall mean total suspended nonfilterable solids.

### § 415.62 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be

discharged from the production of chlorine, sodium or potassium hydroxide by the mercury cell process after application of the best practicable technology currently available by a point source subject to the provisions of this subpart:

| *Effluent characteristic* | *Effluent limitation* |
|---|---|
| TSS | Maximum for any one day 0.64 kg/kkg product (0.64 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.32 kg/kkg of product (0.32 lb/1,000 lb). |
| Total Dissolved Mercury. | Maximum for any one day 0.00014 kg/kkg product (0.00014 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.00007 kg/kkg of product (0.00007 lb/1,000 lb). |
| pH | Within the range 6.0 to 9.0. |

(b) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged from the production of chlorine, sodium or potassium hydroxide by the diaphragm cell process after application of best practicable control technology currently available by a point source subject to the provisions of this subpart:

| *Effluent characteristic* | *Effluent limitations* |
|---|---|
| TSS | Maximum for any one day 0.17 kg/kkg product (0.17 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.083 kg/kkg of product (0.083 lb/1,000 lb). |
| Total Dissolved Lead. | Maximum for any one day 0.005 kg/kkg product (0.005 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.0025 kg/kkg of product (0.0025 lb/1,000 lb). |
| pH | Within the range 6.0 to 9.0. |



### § 415.63 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.64 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.65 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the chlorine and sodium or potassium hydroxide subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title except that for the purposes of this section, § 128.133 of this title shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.64, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard appli-

cable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart G—Hydrochloric Acid Production Subcategory

### § 415.70 Applicability; description of hydrochloric acid production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of hydrochloric acid by direct reaction of chlorine with hydrogen.

### § 415.71 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of hydrochloric acid.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

### § 415.72 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.73 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically



achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.74 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.75 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the hydrochloric acid subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title, except that for the purposes of this section, § 128.133, 40 CFR shall be amended to read as follows: "In addition to the prohibitions set forth in [4874] § 128.131, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.74, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart H—Hydrofluoric Acid Production Subcategory

### § 715.80 Applicability; description of hydrofluoric acid production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of hydrofluoric acid.

### § 415.81 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of hydrofluoric acid.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

### § 415.82 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.83 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.84 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control



technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.85 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the hydrofluoric acid subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title, except that for the purposes of this section, § 128.133 of this title, shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.84, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart I—Hydrogen Peroxide Production Subcategory

### § 415.90 Applicability; description of hydrogen peroxide production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of hydrogen peroxide by the electrolytic process and by the oxidation of alkyl hydroanthraquinones.

### § 415.91 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waster water" shall mean any water which, during the manufacturing process, comes into direct

contact with any raw material, intermediate product, by-product or product used in or resulting from the production of hydrogen peroxide.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

(c) The term "product" shall mean hydrogen peroxide.

(d) The following abbreviations shall have the following meanings: (1) kg shall mean kilogram(s); (2) kkg shall mean 1,000 kilograms; (3) lb shall mean pound(s); (4) TSS shall mean total suspended nonfilterable solids; (5) other dissolved metals shall mean iron and platinum; and (6) TCC shall mean total organic carbon.

### § 415.92 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged from the production of hydrogen peroxide by the oxidation process after application of the best practicable technology currently available by a point source subject to the provisions of this subpart:

| *Effluent characteristic* | *Effluent limitations* |
|---|---|
| TSS | Maximum for any one day 0.8 kg/kkg product (0.8 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.4 kg/kkg of product (0.4 lb/1,000 lb). |
| TOC | Maximum for any one day 0.44 kg/kgg product (0.44 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.22 kg/kkg of product (0.22 lb/1,000 lb). |
| pH | Within the range 6.0 to 9.0. |



(b) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged from the production of hydrogen peroxide by the electrolytic process after application of best practicable control technology currently available by a point source subject to these provisions of this subpart:

| *Effluent characteristic* | *Effluent limitations* |
|---|---|
| TSS | Maximum for one day 0.005 kg/kkg product (0.005 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.0025 kg/kkg product (0.0025 lb/1,000 lb). |
| Total Dissolved Cyanide. | Maximum for one day 0.0004 kg/kkg product (0.0004 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.0002 kg/kkg product (0.0002 lb/1,000 lb). |
| Total Other Dissolved Metals. | Maximum for one day 0.004 kg/kkg product (0.004 kg/kkg). |
| | Maximum average of daily values for any period of thirty consecutive days 0.0002 kg/kkg product (0.0002 lb/1,000 lb). |
| pH | Within the range 6.0 to 9.0. |

### § 415.93 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.94 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, [4875] operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigate waters.

### § 415.95 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the hydrogen peroxide subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title, except that for the purposes of this section, § 128.133 of this title shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.94, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart J—Nitric Acid Production Subcategory

### § 415.100 Applicability; description of nitric acid production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of nitric acid by the catalytic oxidation of ammonia.



### § 415.101 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of nitric acid.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

### § 415.102 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.103 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.104 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control

technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.105 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the nitric acid subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128, of this title except that for the purposes of this section, § 128.133 of this title, 40 CFR shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.104, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart K—Potassium Metal Production Subcategory

### § 415.110 Applicability; description of potassium metal production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of potassium metal.

### § 415.11 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-



product or product used in or resulting from the production of potassium.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

### § 415.112 Effluent limitations guidelines representi the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.113 Effluent limitations guidelines representing he degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.114 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.115 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the potassium subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title, except that for the purposes of this section, § 128.133, of this title, shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.114, provided that, if [4876] the publicly owned treatment works which receives the pollutants is committed in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart L—Potassium Dichromate Production Subcategory

### § 415.120 Applicability; description of potassium dichromate production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of potassium dichromate.

### § 415.121 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of potassium dichromate.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.



### § 415.122 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged, after application of the best practicable technology currently available by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.123 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.124 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.125 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the potassium dichromate subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters),

shall be the standard set forth in Part 128 of this title, except that for the purposes of this section, § 128.133 of this title, 40 CFR shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.124, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart M—Potassium Sulfate Production Subcategory

### § 415.130 Applicability; description of potassium sulfate production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of potassium sulfate.

### § 415.131 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of potassium sulfate.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

### § 415.132 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged



after application of the best practicable technology currently available by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.133 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.134 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.135 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the potassium sulfate subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title, except that for the purposes of this section, § 128.133 of this title, 40 CFR shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall

be the standard of performance for new sources specified in § 415.134, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart N—Sodium Bicarbonate Production Subcategory

### § 415.140 Applicability; description of sodium bicarbonate production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of sodium bicarbonate.

### § 415.141 Specialized definitions.

For the purposes of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of sodium bicarbonate.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

[4877] ### § 415.142 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.



### § 415.143 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.144 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.145 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the sodium bicarbonate subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title, except that for the purposes of this section, § 128.133 of this title, shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.144, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant,

the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant.

## Subpart O—Sodium Carbonate Production Subcategory

### § 415.150 Applicability; description of sodium carbonate production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of sodium carbonate by the Solvay process.

### § 415.151 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product, product used in or resulting from the production of sodium carbonate.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

(c) The term "product" shall mean sodium carbonate.

(d) The following abbreviations shall have the following meanings: (1) kg shall mean kilogram(s); (2) kkg shall mean 1,000 kilograms; (3) lb shall mean pound(s); (4) TSS shall mean total suspended nonfilterable solids.

### § 415.152 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently



available by a point source subject to the provisions of this subpart:

| *Effluent Characteristic* | *Effluent Limitation* |
|---|---|
| TSS | Maximum for any one day 0.34 kg/kkg product (0.34 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.17 kg/kkg of product (0.17 lb/1,000 lb). |
| pH | within the range 6.0 to 9.0. |

### § 415.153 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart:

| *Effluent characteristic* | *Effluent limitation* |
|---|---|
| TSS | Maximum for any one day 0.2 kg/kkg product (0.2 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.1 kg/kkg of product (0.1 lb./1,000 lb). |
| pH | Within the range 6.0 to 9.0. |

### § 415.154 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no dis-

charge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.155 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the sodium carbonate subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128, of this title, except that for the purposes of this section, § 128.133 of this title, 40 CFR shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.154, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart P—Sodium Chloride Production Subcategory

### § 415.160 Applicability; description of sodium chloride production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of sodium chloride by the solution brine-mining process and by the solar evaporation process.

### § 415.161 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-



product or product used in or resulting from the production of sodium chloride.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

(c) The term "product" shall mean sodium chloride.

(d) The following abbreviations shall have the following meanings: (1) kg shall mean kilogram(s); (2) kkg shall [4878] mean 1000 kilograms, (3) lb shall mean pound(s); and (4) TSS shall mean total suspended nonfilterable solids.

### § 415.162 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged from the production of sodium chloride by the solar evaporation process after application of the best practicable technology currently available by a point source subject to the provisions of this subpart: there shall be no discharge of process waste water pollutants to navigable waters.

(b) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged from the production of sodium chloride by the brine-mining process after application of the best practicable technology currently available by a point source subject to the provisions of this subpart:

| *Effluent Characteristic* | *Effluent Limitation* |
|---|---|
| TSS | Maximum for any one day 0.30 kg/kkg product (0.30 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.15 kg/kkg product (0.15 lb/1,000 lb). |
| pH | Within the range 6.0 to 9.0. |

### § 415.163 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.164 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.165 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the sodium chloride subcategory, which is an industrial user of publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128, of this title except that for the purposes of this section, § 128.133 of this title, 40 CFR shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.164, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."



## Subpart Q—Sodium Dichromate and Sodium Sulfate Production Subcategory

### § 415.170. Applicability; description of sodium dichromate and sodium sulfate production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of sodium dichromate and by-product sodium sulfate.

### § 415.171 Specialized definitions.

For the purpose of this subpart:

(a) the term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of sodium dichromate/sodium sulfate.

(b) the term "process waste water pollutants" shall mean any pollutants present in the process waste water.

(c) the term "product" shall mean sodium [d]ichromate.

(d) the following abbreviations shall have the following meanings: (1) kg shall mean kilogram(s); (2) kkg shall mean 1000 kilograms; (3) lb shall mean pound(s); (4) TSS shall mean total suspended nonfilterable solids.

### § 415.172 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently

available by a point source subject to the provisions of this subpart:

| *Effluent Characteristic* | *Effluent Limitation* |
|---|---|
| TSS | Maximum for any one day 0.44 kg/kkg product (0.44 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.22 kg/kkg of product (0.22 lb/1,000 lb). |
| Total Chromium. | Maximum for any one day 0.0088 kg/kkg product (0.0088 lb/1,000 lb). |
| Hexavalent Chromium. | Maximum average of daily values for any period of thirty consecutive days 0.0044 kg/kkg of product (0.0044 lb/1,000 lb). |
| | Maximum for any one day 0.0018 kg/kkg product (0.0018 lb/1,000 lb). |
| pH | Maximum average of daily values for any period of thirty consecutive days 0.0009 kg/kkg of product (0.0009 lb/1,000 lb). within the range 6.0 to 9.0. |

### § 415.173 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.174 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged



reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.175 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the sodium dichromate and sodium sulfate subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title, except that for the purposes of this section, § 128.133 of this title, 40 CFR shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.174, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment stand- [4879] ard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart R—Sodium Metal Production Subcategory

### § 415.180 Applicability; description of sodium metal production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of sodium metal by electroylsis.

## § 415.181 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of sodium.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

(c) The term "product" shall mean sodium metal.

(d) The following abbreviations shall have the following meanings: (1) kg shall mean kilogram(s); (2) kkg shall mean 1,000 kilograms; (3) lb shall mean pound(s); and (4) TSS shall mean total suspended nonfilterable solids.

## § 415.182 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this subpart:

| *Effluent characteristic* | *Effluent Limitation* |
|---|---|
| TSS | Maximum for any one day 0.46 kg/kkg product (0.46 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.23 kg/kkg of product (0.23 lb/1,000 lb). |
| pH | Within the range 6.0 to 9.0. |



## § 415.183 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

## § 415.184 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of affluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

## § 415.185 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the sodium subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128, of this title except that for the purposes of this section, § 128.33 of this title, 40 CFR shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.184, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant,

the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart S—Sodium Silicate Production Subcategory

### § 415.190 Applicability; description of sodium silicate production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of sodium silicate.

### § 415.191 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of sodium silicate.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

### § 415.192 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this subject: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.193 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged



after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.194 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.195 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the sodium silicate subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigate waters), shall be the standard set forth in Part 128, of this title, except that for the purposes of this section, § 128.133 of this title, 40 CFR shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.194, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart T—Sodium Sulfite Production Subcategory

### § 415.200 Applicability; description of sodium sulfate production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of sodium sulfite from the reaction of sulfur dioxide with soda ash.

### § 415.201 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into di- [4880] rect contact with any raw material, intermediate product, by-product or product used in or resulting from the production of sodium sulfite.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

(c) The term "product" shall mean sodium sulfite.

(d) The following abbreviations shall have the following meanings: (1) kg shall mean kilogram(s); (2) kkg shall mean 1000 kilograms; (3) lb shall mean pound(s); (4) TSS shall mean total suspended nonfilterable solids and (5) COD shall mean chemical oxygen demand.

### § 415.202 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this subpart:

| *Effluent characteristic* | *Effluent Limitation* |
|---|---|
| TSS | Maximum for any one day 0.032 kg/kkg product (0.032 lb/1,000 lb). |



| *Effluent characteristic* | *Effluent Limitation* |
|---|---|
| | Maximum average of daily values for any period of thirty consecutive days .016 kg/kkg product (0.16 lb/1,000 lb). |
| COD | Maximum for any one day 3.4 kg/kkg product (3.4 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 1.7 kg/kkg product (1.7 lb/1,000 lb). |
| pH | Within the range 6.0 to 9.9 [sic]. |

### § 415.203 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.204 Standards of performance for new source.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.205 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the sodium sulfite subcategory, which is an

industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128, of this title, except that for the purposes of this section, § 128.133 of this title, 40 CFR shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.204, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart U—Sulfuric Acid Production Subcategory

### § 415.210 Applicability; description of sulfuric acid production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of sulfuric acid by the catalytic oxidation of sulfur dioxide in single or double absorption plants.

### § 415.211 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of sulfuric acid.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.



### § 415.212 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable technology currently available by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.213 Effluent limitations guideline representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.214 Standards of performance for new sources.

The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: There shall be no discharge of process waste water pollutants to navigable waters.

### § 415.215 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the sulfuric acid subcategory, which is an industrial user of a publicly owned treatment works (and which

would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standards set forth in Part 128, 40 CFR, except that for the purposes of this section, § 128.133 shall be amended to read as follows: "In addition to the prohibitions set forth in section 128.131, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.214, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

## Subpart V—Titanium Dioxide Production Subcategory

### § 415.220 Applicability; description of titanium dioxide production subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of titanium dioxide by the sulfate process and by the chloride process.

### § 415.221 Specialized definitions.

For the purpose of this subpart:

(a) The term "process waste water" shall mean any water which, during the manufacturing process, comes into direct contact with any raw material, intermediate product, by-product or product used in or resulting from the production of titanium dioxide.

(b) The term "process waste water pollutants" shall mean any pollutants present in the process waste water.

(c) The term "product" shall mean titanium dioxide.

(d) The term "other dissolved metals" shall mean vanadium (as $V_2O_5$), aluminum (as $Al_2O_3$), silicon (as $SiO_2$), chromium



(as $Cr_2O_3$), magnesium (as MgO), [4881] neodymium (as $Nd_2O_3$) and zirconium (as $ZrO_2$).

(e) The following abbreviations shall have the following meaning: (1) kg shall mean kilogram(s); (2) kkg shall mean 1000 kilograms; (3) lb shall mean pound(s); (4) TSS shall mean total suspended nonfilterable solids.

### § 415.222 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged from the production of titanium dioxide by the chloride process after application of the best practicable technology currently available by a point source subject to the provisions of this subpart:

| *Effluent characteristic* | *Effluent limitation* |
|---|---|
| TSS | Maximum for any one day 4.4 kg/kkg product (4.4 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 2.2 kg/kkg of product (2.2 lb/1,000 lb). |
| Total dissolved iron. | Maximum for any one day 0.072 kg/kkg product (0.072 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.036 kg/kkg of product (0.036 lb/1,000 lb). |
| Total dissolved lead. | Maximum for any one day 0.028 kg/kkg product 0.028 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.014 kg/kkg of product (0.014 lb/1,000 lb). |
| Total other dissolved metals. | Maximum for any one day 0.03 kg/kkg product (0.03 lb/1,000 lb). |

| *Effluent characteristic* | *Effluent limitation* |
|---|---|
| pH | Within the range 6.0 to 9.0. |
| | Maximum average of daily values for any period of thirty consecutive days 0.015 kg/kkg of product (0.015 lb/1,000 lb). |

(b) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged from the production of titanium dioxide by the sulfate process after application of best practicable control technology currently available by a point source subject to the provisions of this subpart:

| *Effluent characteristic* | *Effluent limitation* |
|---|---|
| TSS | Maximum for any one day 5.0 kg/kkg product (5.0 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 2.5 kg/kkg of product (2.5 lb/1,000 lb). |
| Magnesium (as MgO). | Maximum for any one day 2.0 kg/kkg product (2.0 lb/1,000 lb). |
| Cobalt (as CoO). | Maximum for any one day 0.1 kg/kkg product (0.1 lb/1,000 lb). |
| Silicon (as $SiO_2$). | Maximum for any one day 0.1 kg/kkg product (0.1 lb/1,000 lb). |
| Chrominum (as $Cr_2O_3$). | Maximum for any one day 0.1 kg/kkg product (0.1 lb/1,000 lb). |
| Aluminum (as $Al_2O_3$). | Maximum for any one day 0.1 kg/kkg product (0.1 lb/1,000 lb). |
| Iron (as (as $Fe_2O_3$). | Maximum for any one day 0.1 kg/kkg product (0.1 lb/1,000 lb). |
| Vanadium (as $V_2O_5$). | Maximum for any one day 3.2 kg/kkg product (3.2 lb/1,000 lb). |
| pH | Within the range 6.0 to 9.0. |



**§ 415.223 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged from production of titanium dioxide by the chloride process after application of the best available technology economically achievable by a point source subject to the provisions of this subpart:

| *Effluent Characteristic* | *Effluent Limitation* |
|---|---|
| TSS | Maximum for any one day 2.6 kg/kkg product (2.6 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 1.3 kg/kkg of product (1.3 lb/1,000 lb). |
| Total dissolved iron. | Maximum for any one day 0.072 kg/kkg product (0.072 lb/1,000 lb). |
| | Maximum averages of daily values for any period of thirty consecutive days 0.036 kg/kkg of product (0.036 lb/1,000 lb). |
| Total dissolved lead. | Maximum for any one day 0.028 kg/kkg product (0.028 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.014 kg/kkg of product (0.014 lb/1,000 lb). |
| Total other dissolved metals. | Maximum for any one day 0.03 kg/kkg product (0.03 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.015 kg/kkg of product (0.015 lb/1,000 lb). |
| pH | Within the range 6.0 to 9.0. |

(b) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be dis-

charged from the production of titanium dioxide by the sulfate process after application of the best available technology economically achievable by a point source subject to the provisions of this subpart:

| *Effluent characteristic* | *Effluent limitation* |
|---|---|
| TSS | Maximum for any one day 3.0 kg/kkg product (3.0 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 1.5 kg/kkg of product (1.5 lb/1,000 lb). |
| Magnesium (as MgO) | Maximum for any one day 2.0 kg/kkg product (2.0 lb/1,000 lb). |
| Cobalt (as CoO) | Maximum for any one day 0.1 kg/kkg product (0.1 lb/1,000 lb). |
| Silicon (as $SiO_2$) | Maximum for any one day 0.1 kg/kkg product (0.1 lb/1,000 lb). |
| Chromium (as $Cr_2O_3$) | Maximum for any one day 0.1 kg/kkg product (0.1 lb/1,000 lb). |
| Aluminum (as $Al_2O_3$) | Maximum for any one day 0.1 kg/kkg product (0.1 lb/1,000 lb). |
| Iron (as $Fe_2O_3$) | Maximum for any one day 0.1 kg/kkg product (0.1 lb/1,000 lb). |
| Vanadium (as $V_2O_5$) | Maximum for any one day 3.2 kg/kkg product (3.2 lb/1,000 lb). |
| pH | Within the range 6.0 to 9.0. |

### § 415.224 Standards of performance for new sources.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable from the production of titanium dioxide by the chloride process through application of the best available



demonstrated control technology, processes, operating methods, or other alternatives, including where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart:

| *Effluent characteristic* | *Effluent limitation* |
|---|---|
| TSS | Maximum for any one day 2.6 kg/kkg product (2.6 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 1.3 kg/kkg of product (1.3 lb/1,000 lb). |
| Total dissolved iron. | Maximum for any one day 0.072 kg/kkg product (0.072 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.036 kg/kkg of product (0.036 lb/1,000 lb). |
| Total dissolved lead. | Maximum for any one day 0.028 kg/kkg product (0.028 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.014 kg/kkg of product (0.014 lb/1,000 lb). |
| Total other dissolved metals. | Maximum for any one day 0.03 kg/kkg product (0.03 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 0.015 kg/kkg of product (0.015 lb/1,000 lb). |
| pH | Within the range 6.0 to 9.0. |

(b) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable from the production of titanium dioxide by the sulfate process through application of the best available demonstrated control technology processes, operating methods, [4882] or other alternatives, including, where practicable, a

standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart:

| *Effluent characteristic* | *Effluent limitations* |
|---|---|
| TSS | Maximum for any one day 3.0 kg/kkg product (3.0 lb/1,000 lb). |
| | Maximum average of daily values for any period of thirty consecutive days 1.5 kg/kkg of product (1.5 lb/1,000 lb). |
| Magnesium (as MgO). | Maximum for any one day 2.0 kg/kkg product (2.0 lb/1,000 lb). |
| Cobalt (as CoO). | Maximum for any one day 0.1 kg/kkg product (0.1 lb/1,000 lb). |
| Silicon (as $SiO_2$). | Maximum for any one day 1.0 kg/kkg product (0.1 lb/1,000 lb). |
| Chromium (as $Cr_2O_3$). | Maximum for any one day 1.0 kg/kkg product (1.0 lb/1,000 lb). |
| Aluminum (as $Al_2O_3$). | Maximum for any one day 1.0 kg/kkg product (1.0 lb/1,000 lb). |
| Iron (as $Fe_2O_3$). | Maximum for any one day 1.0 kg/kkg product (1.0 lb/1,000 lb). |
| Vanadium (as $V_2O_5$). | Maximum for any one day 3.2 kg/kkg product (3.2 lb/1,000 lb). |

### § 415.225 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the titanium dioxide production subcategory, which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128 of this title except that for the purposes of this section, § 128.133 of this title shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, the pretreatment standard for incompatible pollutants introduced into a publicly



owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 415.224, provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

[FR Doc. 73–21230 Filed 10–10–73; 8:45 am]

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[COMMENTS ON PROPOSED RULES—NL INDUSTRIES.]

[4918] TITANIUM PIGMENT OPERATIONS

GLENN A. WILSON
Group Vice President

REGISTERED MAIL
RETURN RECEIPT REQUESTED

November 7, 1973

U.S. Environmental Protection Agency
Information Center
Washington, D. C. 20460

Attention: Mr. Philip B. Wisman

Gentlemen:

Please accept our comments in response to the Proposed Rules, published in the Federal Register October 11, 1973, establishing Effluent Limitations, Guidelines and Standards of Performance and Pretreatment for Inorganic Chemicals, Manufacturing Point Sources Category. The comments are made with reference to those sections of the Guidelines and other

reference Documents pertaining to the production of titanium dioxide and are detailed in the attached Exhibit A.

We believe that if the proposed Guidelines are promulgated in the present form they will have a profound adverse impact on the national economy, the titanium dioxide pigment industry, and N L Industries, Inc., Titanium Pigment Division. Our analysis of the Guidelines and supplementary Documents shows many seeming inaccuracies, false assumptions and erroneous conclusions. We respectfully urge a complete re-evaluation of these Guidelines before they are promulgated. In your re-evaluation we invite your consideration to the points set forth in the attached Exhibit A.

Very truly yours,

GLENN A. WILSON
Group Vice President

[4919]

**EXHIBIT A**

**N L INDUSTRIES, INC.**
**TITANIUM PIGMENT DIVISION**

**Comments on Proposed Effluent Guidelines**

These comments present the response of N L Industries, Inc., Titanium Pigment Division on the Proposed Effluent Limitations Guidelines of Reference (2), using the Development Document of Reference (1) and the Economic Analysis of Reference (3), as those Guidelines relate to the production of titanium dioxide ($TiO_2$).

**Reference Documents**

(1) "Development Document for Proposed Effluent Guidelines and New Source Performance Standards for the Major Inorganic Products Segment of the Inorganic Chemicals Manufacturing Point Source Category," United States Environmental Protection Agency, August 1973.

(2) "Effluent Limitations Guidelines and Standards of Performance and Pretreatment," Environmental Protection Agency, Federal Register, October 11, 1973.



(3) "Economic Analyses of Proposed Effluent Guidelines—Inorganic Chemicals, Alkali and Chlorine Industries (Major Products)," Contract No. 68-01-1541, August 1973, Office of Planning and Evaluation, Environmental Protection Agency, Washington, D. C.

**SUMMARY**

1. The required technology to achieve the Proposed Guidelines has not been demonstrated in the titanium dioxide production industry.

2. The total impact of the Proposed Guidelines on the environment, on land use policy, the national energy crisis, and the cost and cost benefits have been inadequately considered and inaccurately assessed.

3. The treatment methods and costs have been understated for the degree of control specified in the Guidelines.

[4920] 4. Promulgation of these Guidelines would produce severe inequities and would be the decisive competitive factor for the entire titanium dioxide industry. This is not the intent of the law (PL-92-500).

5. Administration of the Proposed Guidelines would be extremely difficult.

**DISCUSSION**

**Land Use Policy**

In order to achieve the extremely low levels of materials in the titanium dioxide plant effluent streams as listed in the Proposed Guidelines, lime neutralization of process effluents would be required, followed by separation of the resulting calcium sulfate-metal hydroxide from effluent waste water, and disposal of the sludge and land filling. This is the major treatment technology advocated by the contractor in the development Document. It is believed this land filling is unfeasible, uneconomical, and violates an environmental axiom expounded in the Development Document (page 11) ". . . that exemplary sites are not those which are exchanging one form of pollution for another of the same or greater magnitude." The technology

advocated by the contractor trades a reduction in liquid emission for a solid waste disposal problem and a possible conflict with Local, State and Federal regulations.

The availability of land for such land filling is a major problem. Land is not available at many plant locations, necessitating hauling to distant fill sites. At one N L plant use of neutralization technology would mean transporting approximately 25,000 tons per day of wet sludge to a site many miles away. This again assumes that a satisfactory site could be found. Furthermore, the contractor states there is a problem of solubility ". . . slightly soluble material such as calcium sulfate may be handled this way (although not necessarily with complete justification)." (Development Document, Page 342) This means waterproof containment must be used. Since the evaporation-rainfall balance is unfavorable at titanium dioxide plant locations, the gypsum cake would need to be containerized in some sort of plastic envelope. The cost for this will be discussed in a later section, but transport and disposal of 25,000 tons per day of waste solids by this means, using the example of the previously mentioned N L plant, involves a land-volume in excess of 400 acre-feet per year.

[4921] The Development Document lists the various factors considered for best practical technology and best available technology (Pages 353 and 369). Land availability or land use policy are not listed and appear not to have been considered. Certainly these are major factors when considering either the best practical or best available technology for the reduction of liquid effluents from a titanium dioxide plant.

**Energy Consumption**

An important factor in considering the treatment technologies advocated in the Development Document is their energy consumption. The contractor has assumed energy costs and availability which seem to disregard the predictions for the period covered by the Guidelines. Neutralization processes require energy for grinding and mixing of reactants, and for filtering and transport of sludges to a landfill site. Energy is required for the production of lime or other neutralizing



agents. Other processes discussed by the contractor, such as demineralization, multi-effect evaporation, and acid concentration all have their own energy demands, some of them very high. We have estimated, for example, that one acid recovery process requires about one ton of fuel oil in order to recover one ton of sulfur contained in the concentrated acid. This consumption of an increasingly scarce resource, oil, to recover one ton of widely available and inexpensive sulfur is not in the national interest.

**Guideline Flexibility**

The Proposed Guidelines are blanket rules which fail to take into account unique features at individual existing plants. Some plants have no land available for landfilling; indeed, some may not have the land necessary for the construction of the treatment facilities that would be required. Other factors not taken into account are the age, location, water supply, and product mix of the plants. For example, one of the N L plants produces nonpigmentary $TiO_2$. This is a unique product, for the glass and ceramic industries. The process yields dilute effluents that [4922] would be uniquely expensive to treat. Further, the existing process equipment at this plant yields dilute effluents not suitable for acid recovery. The best practical technology is not the same for all plants because of limitations imposed by the unique and peculiar factors of each plant.

The Guidelines should be flexible with consideration given to the numerous plant by plant exceptions to the "model plant" used by the contractor.

**Lack of Demonstrated Control Technology**

The technology required to achieve the low Guideline levels has not been demonstrated on $TiO_2$ plant effluent streams. The contractor has assumed the successful transfer of technology from other processes, an assumption that remains to be proven viable. The Development Document states (Abstract, Page iii, 2nd paragraph): "The standards of performance and pretreatment standards for new sources contained herein set forth the degree of effluent reduction which is achievable through the

application of the best available demonstrated control technology, . . ." No control technology has been demonstrated that would enable $TiO_2$ manufacturing plants to meet the Proposed Limitations, Guidelines, and Standards of Performance published October 11, 1973.

**Costs and Cost Benefit**

Costs are one of the most important, and one of the most difficult factors to be evaluated, yet the technologies must be "economically achievable." We believe the costs in the Development Document to be low by a factor of two to four. More specifically, the costs for neutralization at an N L sulfate plant were recently estimated by a consulting organization at $142/ton of product as compared to the EPA contractor's estimate of $82/ton of product. Even at this cost, the treatment would not meet the Proposed Guideline limits.

[4923] We feel the costs developed by the EPA contractor are low. In examining the Summary Cost Tables 68 and 69 (Pages 308, 309 of the Development Document), no separate cost for solids disposal is listed. Possibly, it is included in the "Operating and Maintenance Costs" category. If so, it appears that a very low solids disposal cost was used. In Table 68, for example, under Category "C," we find $2,000,000 for all of operating and maintenance. Maintenance alone on a $10,000,000 facility would cost about $500,000 per year. It appears that a solids disposal cost of about $1/ton was used, which would amount to about $730,000 per year. However, if no land is available at the plant site, and considering the need for containerization of the solids, as described earlier, the disposal cost would be much higher. The Development Document states (Page 344) that waterproof containment with plastic envelope sealing would cost $4/ton. Adding transportation and dump site acquisition and maintenance costs, the cost for solids disposal could easily be $5-$10/ton. For the case "C" of Table 68, the solids disposal cost would then be $3,000,000 to $6,500,000 per year *higher* than estimated by the contractor. These costs are $150 to $231 per ton of product as compared with the EPA contractor cost estimate of $82 per ton.



On the subject of economics the contractor states, in the Development Document (Page 238): "The sulfate process for producing titanium dioxide has the greatest raw waste load of all the processes of this study. This is not because control and treatment technology is lacking, but rather because it is more economical not to apply it." The second sentence is a statement of opinion not supported by any data, and is an unwarranted conclusion. There are important factors other than economics that have a bearing on whether control and treatment technology is either available or feasible. As has been discussed, other factors of importance are availability of land for solids disposal, land use policy, energy consumption, whether or not present disposal practices are harmful, and whether the costs to be borne ultimately by the consumer are justified by the benefits obtained. By drawing this conclusion the contractor attempts to prove by rhetoric what was not proven regarding the technological feasibility or the cost benefit of the Proposed Guidelines.

[4924] Fundamental questions that must be asked and answered are: "What harm is being done now?" and "What benefit is derived from the increased capital and manufacturing expenditures of millions of dollars?" The law requires that there be cost benefits. The contractor states in the Development Document in regard to the effluent limitations which must be achieved by July 1, 1977 (Page 353, 3rd paragraph): "Consideration was also given to:

a. The total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application."

We find no analysis or discussion of such "benefits" in the report.

**Pricing, Competition**

The Economic Analysis by a second EPA contractor, using costs derived by the first contractor, studies the questions of pricing, plant shutdowns, and foreign competition. He indicates that the estimated required price increase to cover the

proposed treatment costs would force some, but not many, plant shutdowns, and foreign competition would not increase unduly. However, if, as we contend, the estimates of treatment costs are much too low, then the required price increases would have different consequences. It is believed widespread plant shutdowns would be forced, and imports of $TiO_2$ would increase drastically. This would aggravate the balance of payment problems, and is tantamount to exporting jobs. This opinion is supported by the contractor who states in the Economic Analysis (Page 110): ". . . that if costs are in fact understated by a factor of four, the impact on the $TiO_2$ industry will be severe and substantial plant shutdowns could be expected especially among sulfate producers." Based on the cost estimates of our consultant, the situation described in the above quote is a very real possibility if the Proposed Guidelines are promulgated.

$TiO_2$ is regarded by the contractor as a unique material "having no satisfactory replacement" (Page 265). In some applications this is true, but not in all. In paper manufacturing, for example, $TiO_2$ must compete directly with other opacifiers such as clays. $TiO_2$ consumption in paper manufacturing is substantial, amounting to about 20% of $TiO_2$ production. Furthermore, if the price of $TiO_2$ [4925] were to increase sharply, its consumption would surely decrease as a result of the consequent shift away from the end products in which it is used. Paint production would undoubtedly decrease as a result of shifts to alternate coating materials such as paper, plastic films, plasters and other alternative materials. We can agree with the conclusion on Page 111 of the Economic Analysis: ". . . a price higher than about $.40 per pound makes substitution by high brightness clays and other pigments economically attractive."

It is believed that at the least, enforcement of the Proposed Guidelines would produce severe inequities between producers, and be *the* decisive factor in establishing competition and in determining who could produce what, where, and at what cost. This is not the intent of the law. Nor is it the intent of the law to favor one process over another and yet it is concluded on Pages 9 and 110 of the Economic Analysis in regard to treatment costs, ". . . that sulfate process $TiO_2$ is at a greater disadvantage with respect to chloride process $TiO_2$" and "[t]he chloride producers will probably be less affected by water treatment costs and we do not anticipate any chloride facility closing as the direct result of these costs."



**Technical Aspects**

The validity of the basis used to establish the Guideline limits is questioned. It is stated, "The above Guidelines are based on a modeled sulfate process titanium dioxide plant using 100,000 (units not stated) of process water per k kg of product and allowing 25 mg/l of suspended solids in the effluent. The dissolved metal limitations are based on solubility limits of the oxides in a neutral pH effluent. An average of the concentrations of metal impurities in Adirondack and Australian ilmenite ores was used to establish the levels." (Page 368 of the Development Document) We believe this basis to be unduly arbitrary, and wholly unrealistic in that it does not relate to conditions at any $TiO_2$ plant. Water consumption per unit of production varies among the various producers, so that the amount of a metal oxide calculated to be present at saturation would be different in each case. The amount of water used per unit of production cannot be made the same for all producers because of varying processing (e.g., washing) operations, which necessarily yield waste water flows other than those apparently assumed by the contractor. Further, the waste waters will contain varying amounts of anions such as chloride and sulfate ion, again varying among producers, because of the use of different processes, which will have a major effect on the solubility of the various metal oxides. Were the "metal oxides" properly considered as hydroxides?

[4926] Laboratory tests conducted for N L by a consultant showed, for example, that at one plant, neutralization to a pH of 7 still left an equivalent of 277 lbs. of soluble iron as $Fe_2O_3$ per ton of product, far above the limit in the Proposed Guidelines. The consultant's report states: "This remaining iron . . . is due to the solubility of the products in neutralization." This

was based on laboratory tests by the contractor, thus providing evidence that the Guideline limits cannot be attained by the technology proposed.

The use of Adirondack and Australian ilmenites as "model ores" is wholly unrealistic. Only one producer uses Adirondack ilmenite, and, to our knowledge, only one producer uses Australian ilmenite as part of his ore input. No $TiO_2$ producer uses a 50:50 blend of the two, on which the concentrations of metal impurities to be obtained was based.

The Guidelines appear to refer to a plant's *net* contribution to material discharge, which can be exceedingly difficult to determine. The water intake of several plants is located in a river affected by tides. Thus, extensive analysis and statistical treatment of data would be required to evaluate the intake of listed "pollutants" in just this one water source. The problem is compounded by surface runoff, equipment corrosion, process upsets, and the location within plant complexes of power plants, acid plants, etc. The contractor's own measurements (Pages 205-210 of the Development Document) show large and erratic variations of levels of ions and of pH in actual plant effluent streams, in turn requiring statistical analysis by complex and possibly, debatable techniques. Considering those data, and the fact that we are to evaluate the *net* contribution of a plant to material discharged, the technical problem in this area is obviously extremely difficult, and raises questions about the administration of such Guidelines.

It is questioned why silica, alumina, and magnesium oxide must be removed to the very low levels in the Proposed Guidelines. They are widely distributed through natural waters and are not known to be harmful. We are unable to comment on the inclusion of cobalt oxide at this time, since it has not to our knowledge, previously been discussed or mentioned.

Discrepancies between substances listed in the Development Document and those listed in the Guidelines Document are noted. The Development Document (Pages 215, 219, 225, 368) refers to manganese as a pollutant, which subsequently is not listed in the [4927] Guidelines Document. Similarly, nio-



bium is listed as a "harmful metal" in the chloride process category (Development Document, page 4, Table I), but is not listed in the Guidelines Document. Contrariwise, neodymium is listed in the Guidelines Document for the chloride process (top of page 28193), but not in the Development Document. The Guidelines Document also lists cobalt and MgO for the sulfate process, but these do not appear in the corresponding listing in the Development Document (Page 225). We question why, in the Guidelines Document, metals are listed for the chloride process, and metal oxides for the sulfate process.

**Higher Limits for New Plants**

It is noted, (page 28194) of the Guidelines Document, that the effluent limitations for a new sulfate $TiO_2$ plant for $Cr_2O_3$, $Al_2O_3$, and $Fe_2O_3$ are higher by a factor of ten than the corresponding limits applicable to an existing sulfate plant. Further there is given no effluent pH range in that case. The reason for those differences is not known.

**Other Comments on Development Document**

1. Page 4, Table 1: Alumina and silica are listed improperly as "harmful metals."
2. Page 27, next to last sentence should be deleted since such pigments are no longer manufactured.
3. Page 184: The amounts of strong and weak acids available varies widely depending on the types of processes and equipment in use.
4. Page 188, 1st paragraph: Believe "the 166 plant" should read "the 122 plant."
5. Page 190, Table 35: The table is insufficiently identified, confusing, impossible to understand.
6. Page 191: What are the units for the listed wastes.
7. Page 239, 3rd paragraph: Why are mining sites in N.Y., N.J., or Florida "more suited" (more able to absorb pollutants?) than most present $TiO_2$ plants?

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[COMMENTS ON PROPOSED RULES—
OLIN CHEMICALS.]

[5151]

OLIN CHEMICALS

120 Long Ridge Road, Stamford, Connecticut 06904

November 9, 1973

Mr. Philip B. Wisman
EPA Information Center
Environmental Protection Agency
Washington, D. C. 20460

Re: Environmental Protection Agency
40 CFR Part 415
Effluent Limitations Guidelines and
Standards of Performance and
Pretreatment for Inorganic Chemicals
Manufacturing Point Source Category

Dear Mr. Wisman:

The following comments are submitted in connection with the proposed Effluent Limitations Guidelines (40 CFR Part 415) which were published in the Federal Register, Volume 38, Number 196, on October 11, 1973, pages 28174 through 28202.

*General*—Since Section 304 (b) of the Water Pollution Control Act requires the Administrator to publish regulations providing guidelines to be used as a tool for establishing effluent limitations, we recommend that the guidelines be established as a range for application in a flexible manner and not as strict standards applicable without exception throughout the industry. Olin accordingly endorses the Manufacturing Chemists Association's position relative to this matter as was stated in Mr. W. J. Driver's letter of October 17, 1973, addressed to Mr. Russell E. Train. Also, we have considerable concern regarding the pretreatment standards which essentially prohibit future industrial participation in municipal treatment facilities in that industry must apply the "best available demonstrated



control technology, processes, operating technology . . ." prior to discharge to a municipal system.

**Subpart F—Chlorine and Sodium or Potassium Hydroxide Production Subcategory**

1. *Effluent limitations for 1977, Best Practicable Control Technology*—The phrase "best practicable control technology currently available" was adopted by Congress as the Phase I (1977) standard. It appears from the legislative history [5152] that "best practicable" was intended to be a more stringent and more comprehensive standard than the so called "industry equivalent to secondary treatment," which connotes 85 to 90 percent $BOD_5$ removal. The requirement was to be established by reference to the average of the best performers in an industry category. Of the 28 currently operating mercury cell facilities in the United States, EPA cited two (EPA designations—130 and 144) as exemplary, and one (EPA designation—098, outside the U.S.) as provisionally exemplary in establishing the best practicable control technology. One of these (130) involves a singularly unique situation, employing potassium chloride brine (as contrasted to sodium chloride brine) as the process raw material. None of the three exemplary plants has a production capacity in excess of 300 tons per day of chlorine. However, about one-third of the existing mercury cell chlorine capacity comes from larger facilities. Moreover, EPA did not include consideration of those facilities which have older and still viable cells that are small in terms of individual cell production capacity but have the highest mercury inventory on a per ton of chlorine production basis.

Contrary to Congressional intent, EPA has based its dissolved mercury effluent limitation of 0.00014 pounds per ton of chlorine produced on the performance of one exemplary plant rather than the average of the best performers in the industry. Although this level of discharge has been achieved by the exemplary plant, it should not be adopted as a general limitation since it does not provide for variations in plant size and age, raw material selection and availability, complexity and geographic location. Therefore, Olin proposes that the dissolve

mercury effluent guideline limitation definition be set in the form of a range having its high end based on an achievable mercury discharge level of 0.1 pounds per day (monthly average) and the low end representing the achievement of the above mentioned exemplary plant. This upper discharge level has been widely accepted within the EPA as representing best current technology as witnessed by issuance in 1973 of two NPDES permits at this level to Olin plants and at least two more permits to other manufacturers. Based on an average size mercury cell chlorine plant of 300 tons per day chlorine production, this equates to 0.0003 pounds of mercury per ton of chlorine produced. The recommended range would therefore be 0.00014 to 0.0003 pounds of mercury discharged per ton of chlorine produced.

Further, based on EPA values of an average of 0.15 pounds of mercury being discharged per day from the 28 existing mercury-cell facilities (.0005 lb. mercury per ton chlorine), a total of about 4 pounds per day of mercury is discharged in the United States from the chlor-alkali industry. Since these 28 facilities produce approximately 7600 tons per day of chlorine, application of the proposed EPA 1977 limitation of 0.00014 lb. mercury per ton of chlorine would reduce the total mercury effluent to 1.1 pounds per day. The concept of spending large sums of money to reduce the mercury effluent of the entire chlor-alkali industry by only three pounds per day as required in the proposed limitations is not economically or environmentally justifiable. A regulation allowing judicious application of a range of values would be much to the national benefit.

[5153] 2. *Effluent Limitations Guidelines for 1983*—The proposed limitation for chlor-alkali plants is "no discharge of process waste water pollutants". In specifying zero discharge EPA ignores such important factors as spills and non-recyclable wastes, waste treatment plant failures or interruptions, and Acts of God. EPA simply states that the technology exists to reach "zero" discharge by 1983. Olin agrees that theoretically this is true, but we believe the Congress intended that the very best information be employed in examining the technology and economics of each product before establishing the regulations.



This has not been done. We object strongly to the economics EPA has used to justify "zero" discharge. The EPA-recommended procedure for chlor-alkali plants to achieve "zero" discharge is sale of spent sulfuric acid, decomposition and evaporation of waste hypochlorite to reusable salt or manufacture and sale of hydrochloric acid from hypochlorite and evaporation of all other process waste water streams after mercury removal to eliminate dissolved solids. For a 175 ton per day chlorine plant, EPA estimates the additional cost for achieving zero discharge, after spending an estimated $2.14 per ton of chlorine for best practicable treatment, to be $.86 per ton of chlorine. The figure is more realistically an additional $2.00 to $3.00 per ton of chlorine. EPA gave $50,000 as the cost of an evaporator system and $200,000 for hypochlorite disposal. More realistic figures are $300,000 for the evaporator (three effects required) and $400,000 for hypochlorite control. EPA gave electrical energy cost as $1,000 per year and steam cost of $5,000 per year to obtain zero discharge for a 175 ton per day chlorine plant. Olin estimates at present day power costs these figures would be $12,000 for electric energy cost and $48,000 for steam cost for this size plant. (Even these costs are expected to rise in the near future) These discrepancies point out the erroneous economics used to support achievement of "zero" discharge. Also, the setting of the zero discharge limitation at this time by-passes the legislative time table which provides, in Section 315 of the Water Pollution Control Act, for a National Study Commission. This Commission is to study in detail all aspects of achieving or not achieving by July 1, 1983 the goals set in Section 301 (b) of the Act (best available technology economically achievable).

Olin has estimated that it would require in excess of $2,000,000 additional capital expenditure and $625,000 additional operating expenditure to achieve no discharge of process waste water pollutants at its chlor-alkali facilities. This expenditure of between $4.00 and $5.00 of capital per annual ton of chlorine would accomplish the elimination of waste streams which are innocuous to most receiving streams. Here again is a case of establishing an unrealistic limitation which cannot

be supported on an economic basis and which will have little, if any, beneficial effect on the environment. The outstanding effect of the "zero" discharge limitation will be an increase in the cost of chlorine by approximately 10%, which will be reflected in the cost of chlorine-consuming products such as plastics, paper products, textiles, etc. and in the cost of municipal waste treatment.

[5154] The cost estimates, economic impact and treatment costs to achieve the effluent reductions attainable by the application of the best practicable treatment currently available and by application of the best available treatment economically achievable have not been demonstrated. It is understandable that cost evaluations are off by a significant factor since in the EPA estimate it is acknowledged that installed costs did not include auxiliary equipment such as boilers or cooling towers, major buildings, land purchase or other costs specific to each application.

**Subpart H—Hydrofluoric Acid Production Subcategory**

In order to avoid generally recognized, serious air pollution problems resulting from the production of hydrofluoric acid the calcium sulfate is usually quenched by slurrying in water. The slurry system will contain some impurities originating in the raw material fluorspar, calcium sulfate and fluorides. The proposed "no discharge" conceivably calls for total reuse of all process water including the above-mentioned quench water. Where impoundment and recycle are practiced, rainfall in excess of evaporation loss may preclude the recycle of all water. Olin proposes that an allowance be made for the release of excess recycle water.

**Subpart U—Sulfuric Acid Production Subcategory**

We believe that double absorption sulfur-burning sulfuric-acid plants can meet the proposed rules for "no discharge" of process waste water pollutants. However, we strongly object to the rule that there should be no process waste water discharge from a single absorption sulfur-burning sulfuric acid



plant where the plant meets air quality standards through the use of a tail gas clean up system. On page 28177 of the Federal Register it is recognized that tail gases for these sulfuric acid plants can be scrubbed and treated. On page 222 of the "Development Document for Proposed Effluent Limitations Guidelines" it is stated that $SO_2$ scrubber effluent should be minimized on existing installations and no waterborne wastes should be allowed from future $SO_2$ removal system. On page 230 of this document it states in the last paragraph that existing $SO_2$ control systems which discharge waterborne waste can be made wastefree by concentration and recovery of sodium sulfate which can be sold. Before Olin provided purge stream treatment of its Curtis Bay, Maryland sulfuric acid plant, the possibility of selling or even giving away the sodium sulfate was investigated. However, *no customers or takers could be found.*

It would appear that those plants that have pioneered in the development of pollution control technology and have installed equipment thought to be acceptable to Federal [5155] and State authorities are being penalized for this effort. Past effort to reduce pollution should not go unrecognized when the waterborne waste products resulting from these efforts are modest and are compatible with the receiving waters. The rules should be amended to permit the discharge of treated waste water from air pollution control facilities in a single absorption sulfur-burning sulfuric acid plant where pH has been adjusted and the sulfate discharge is compatible with the receiving waters.

Olin offers these objections and recommendations for change of the proposed rules hoping to affect the development of effluent limitations that offer the optimum benefits to the country both environmentally and economically.

Yours very truly,

Olin Corporation
C. L. Knowles, Jr.
Director of Engineering and
Environmental Affairs

[COMMENTS ON PROPOSED RULES–
E. I. DU PONT DE NEMOURS
& COMPANY.]

[5156]

E. I. DU PONT DE NEMOURS & COMPANY
Wilmington, Delaware 19898

Legal Department

November 9, 1973

Mr. Philip B. Wisman
Information Center
Environmental Protection Agency
Washington, D. C. 20460

RE: COMMENTS ON THE PROPOSED REGULATIONS–EFFLUENT LIMITATIONS AND STANDARDS OF PERFORMANCE AND PRETREATMENT FOR INORGANIC CHEMICALS MANUFACTURING POINT SOURCE CATEGORY, AND COMMENTS ON

(1) THE EPA DEVELOPMENT DOCUMENT (EPA 440/1-73/007) AND ON

(2) THE ECONOMIC ANALYSIS OF PROPOSED EFFLUENT GUIDELINES, EPA-230/1-73-015.

Dear Mr. Wisman:

We, at Du Pont, seriously question the effluent limitations and the basis for them as set forth in the Inorganic Chemical Industry Guidelines. Not only are most of the effluent limitations for best practicable control technology and best available technology unachievable, but they are also not supported by the record as required by the Act.

Many of the conclusions drawn did not take into account the factors specified in Section 304(b) in determining the control measures and practices applied to point sources.



We agree with the attached legal position paper of MCA on the guidelines and request that EPA state that the guideline limits are not standards but are merely guidance to achieving an effluent reduction which is technologically and economically feasible.

We find few areas in which we concur conceptually with EPA. One of them is item (6) on page 28180 where EPA states that, except for those considered harmful, dissolved solids should not be limited. We interpret this to mean that dissolved solids do not fall within the term "process waste water pollutants." However, EPA did not clarify this point in the definitions for "process waste waters" in Subparts A through V. We suggest that it be so defined as to exclude dissolved solids.

[5157] We also concur with the decision in paragraph (9) of page 28180 to deal with cooling water and boiler blowdown and water supply waste waters as a separate category. In the interest of clarity, we suggest that each subpart specify that these waters are not within the purview of these subparts.

Our analysis of the Development Document shows that most of the erroneous conclusions and insufficient economic evaluations in the Draft Development Document (General Technologies, June, 1973) have been repeated. Du Pont commented extensively on the draft document, either directly to EPA or to the Effluent Standards and Water Quality Information Advisory Committee.

We are concerned that the final Development Document differs little from the draft version. No record has been published to justify or support EPA's decision not to correct the erroneous conclusions drawn in the Development Documents as pointed out in the copious comments submitted by reviewers of that draft Document.

EPA merely states that the data upon which these guidelines were established included EPA permit applications, EPA sampling and inspection, consultant reports, and industry submission. However, the "Development Document for Proposed Effluent Limitation Guidelines and New Source Performance Standards" which details the analysis undertaken in support

of the proposed EPA regulations duplicates with very few exceptions, the consultant's (General Technologies) draft report.

We also disagree with the method used for categorization of the inorganic chemicals studies. EPA states that their subcategorization scheme "simplifies the application of effluent limitations guidelines." While this may be true, we do not believe that it is realistic that every process making the same product can accomplish the same effluent limitation guideline and standard reflected in the best practical technology currently available (BPCTCA) and best available technology economically achievable (BATEA).

We feel that inadequate consideration has been given to the great differences in individual facilities with regard to raw waste load, size of plant, age and type of process equipment, and climatic as well as geographic location factors.

Furthermore, economic equity appears to have been disregarded. It should be pointed out that best practicable control technology currently available, as defined in PL 92-500, requires consideration of the total cost in relation to effluent reduction benefits to be achieved. EPA has not considered the *total* cost in relation to the effluent reduction benefits achieved. The conclusions of the Economic Analysis are erroneous because they were based on the final Development Document which merely repeats the errors of the draft documents. The [5158] Economic Analysis then merely compounds the errors of both documents. In any event, the costs are substantially lower than actual costs.

**A. Costs**

The EPA conclusions are only as good as the cost information. An indication of this is shown on page 110 (subsection 4) of the Economic Analysis wherein the sensitivity to higher treatment costs were examined for the titanium dioxide industry. This citation shows a marked difference in the conclusions on product price, plant closings, etc., if actual treatment costs are four times higher than those shown in the Development Document.



The economic impact discussion in the preamble (Notice of Proposed Rulemaking, item iv, page 28178) contains information taken from the Development Document and apparently ignores conclusions of the Economic Analysis. For example, the later document concludes (page 9), that the best available technology costs are likely to result in plant shutdowns for "chlorine/caustic soda, lime, sludge sulfuric acid, sulfate process titanium dioxide and sodium bichromate." Even for best practicable technology, shutdowns are likely for lime, sludge sulfuric acid, and sodium bichromate. Yet, item iv concludes that the "guidelines and standards will have no major economic impact." What is a major impact? How much more of an impact than stated in the Economic Analysis will there be if the cost of treatment estimates are low as we suspect they are? The preamble makes no mention of the potential for plant shutdowns.

The industry-wide cost calculations do not adequately cover:

- Isolation and treatment of non-contact cooling water including impoundment facilities,
- Isolation and treatment of wash-down water,
- Improvements in process control to reduce waste load variations,
- Isolation and treatment of spills and leaks,
- Segregation of sanitary, process, and non-contact cooling water, and
- Proper containment of sludge to prevent contamination of ground water.

[5159] Many of these cost elements will be prohibitively high for existing plants. Again, no basis is provided, nor are the conclusions supported by the documents or any data.

Furthermore, treatment costs and methods seem to be only geared to plants using the highest grade raw materials. Page 28178 states: "The purity of the raw materials used in many manufacturing processes significantly influence the waste load. Economics and availability, however, necessitate use of impure ores and technical grade reactants. These impurities may be

controlled by washing, purifying, separating or beneficiating the raw materials prior to use in the manufacturing process. Treatment of ores may be done at the mining site where beneficiating waste may be controlled and handled with minimal pollutant effects."

Such reasoning raises these kinds of critical questions about the conclusions reached:

- Do cost effectiveness calculations include beneficiation costs and costs of handling beneficiation wastes? Many "mines" are not in remote locations where waste disposal is no problem. Furthermore, the guidelines are applicable regardless of location.
- Do the guidelines accommodate beneficiation "in house" at the manufacturing plant site?
- Is it EPA's policy to export dollars, jobs, and pollutants to foreign countries where raw material sources might be located?

EPA also states that the annual cost to achieve best practicable technology is less than $1.00/ton of product for fifteen major chemical manufacturing processes and less than $2.00/ton of product for five chemicals. They further state that annual treatment costs are $14.00 and $12.00/ton of product for hydrofluoric and sodium dichromate.

Du Pont cost figures to achieve EPA proposed discharge levels determined for some of the twenty-five chemicals range from a low of $2.00/ton to a high of $49.70/ton of product. Our comments on cost figures contained in the General Technologies' report are applicable to the "Development Document" and are included in the attached Du Pont comments submitted to EPA July 1973. We wish to cite as further examples of incorrect cost figures the following:

- Energy requirements for pumps, clarifiers, etc., in terms of gal./yr. of fuel oil are low due to an error in converting hphr to Btu. One of the many examples can be seen on p. 272 of the "Development Document." It is reported that "Energy requirements for pumps, clarifiers, drives, etc., are taken as 7.5 kwhr (10 hphr) or 53 x 10 kg cal (210 x



10 Btu) or 795 liters/yr. [5160] (210 gal./yr.) of fuel energy." The figures for converting hphr to Btu is 2545 Btu/hphr not 210 Btu/hphr. Therefore, using the following calculation, i.e.,

$$\text{Energy Requirements} = \frac{2545 \text{ Btu/hphr} \times 10 \text{ hphr} \times 8000 \text{ hrs./yr.}}{150{,}000 \text{ Btu/gal of oil}}$$

$$= 1358 \text{ gal./yr. of fuel oil energy assuming 100\% efficiency.}$$

Since overall conversion of energy is about 20% efficiency, actual consumption would be 6800 gal./yr. of fuel oil.

- Costs to recover sodium sulfate—p. 345—Additional costs to recover sodium sulfate from a Wellman $SO_2$ scrubbing system will not even cover basic equipment costs. Using the capital costs shown in the General Information Section of the "Development Document" starting on p. 310 for the various unit steps, the resultant installed cost of recovery equipment is close to $1,000,000. However, EPA using supposedly the same figures comes up with a cost of $80,000.

### B. Thirty-Day vs. One-Day Limits

We question the basis of the difference between the permitted one-day vs. 30-day average values of "process wastewater pollutants", where specified. In *every* case, the one-day limit is twice the 30-day limit. Yet nowhere in the Notice of Proposed Rulemaking, the Development Document, or the Economic Analysis is there one shred of evidence to support such an across-the-industry waste variability. The Development Document contains a section, "Effluent Data Analysis", pp. 203-213, where, presumably, such variability is included. Even this document states that day-to-day effluent data could not be developed for many plants sampled, and was available from only a "very few". How then can the 2 to 1 ratio of one-day to 30-day values be concluded as achievable? There is no record to support this conclusion even in the case of exemplary plants. In fact, the entire section on pp. 203-213 contains abundant and repeated warnings of the limitations of the data on waste variability. The Development Document

contains many misconceptions in the "Effluent Data Analysis" section. These are detailed in the attached comments, previously given to EPA, which were completely ignored in preparing the final Development Document. The section is verbatim as it was.

[5161] **C. Concept of "No Discharge of Pollutants"**

For fourteen of the twenty-two Subparts, best practicable control technology currently available is declared to be "no discharge of process waste water pollutants to navigable waters." While dissolved solids are not included, p. 28180, item (6), the requirement that suspended solids, for example, be *zero* is not realistic. Normally available equipment for removal of suspended solids such as clarifiers, air flotation devices, filters, etc., cannot produce *zero* suspended solids. The requirement of such a limit for any process, especially those subject to washdown of equipment, spill cleanup, etc., is beyond what is normally considered *currently available* practice.

EPA states that fourteen chemical manufacturing processes, including aluminum chloride, aluminum sulfate, calcium carbide, hydrochloric acid, calcium oxide, potassium sulfate, sodium bicarbonate, sodium chloride, sodium silicate, and sulfuric acid generate relatively small amounts of waste water. The process waste streams generally may be treated and recycled, re-used, evaporated for product recovery or sale. We categorically disagree with these conceptions. Nowhere in EPA's proposed rules or their "Development Document," which is referred to in this report, do they provide information on availability of markets for recovered products or cost of recovery.

EPA states that calcium chloride, hydrogen peroxide, sodium, sodium chloride, and sodium carbonate production require treatment to reduce quantities of suspended solids. They state that treatment generally consists of various liquid separation operations including sedimentation and filtration to reduce effluent concentration of suspended solids to 25 mg per liter. Our experience has shown that gravity clarification will not insure 25 mg per liter effluent quality. The proposed guidelines



extend best practicable treatment technology and make polishing filters frequently obligatory. The means of accomplishing such filtration have not been established and because of the postprecipitation characteristics of various wastes, standard filtration is of questionable applicability in many cases. Vacuum or pressure filtration may be applicable, but because of the fineness of particles involved, pre-cost techniques would often be required. The incremental reduction in suspended solids achieved by a polishing filter over that obtainable in well-operated gravity clarification is of questionable justification considering the added energy and solids wastes disposal requirements. An effluent guideline limitation based upon an effluent concentration of not less than 50 mg per liter is more compatible with actual performance of well-designed and operated gravity clarification facilities.

[5162] We, therefore, contend that best practicable treatment technology is not less than 50 mg per liter suspended solids. BATEA guideline levels for suspended solids should be developed after demonstrated technology becomes available.

EPA states that neutralization of acidic or alkaline streams resulting from the manufacture of these chemicals is required. This is consistent with what we consider BPCTCA. However, EPA further states that recycle and re-use of various waste streams are possible. We contend that recycle and re-use has not been demonstrated especially in the case of sodium metal, hydrogen peroxide, and merchant plants for sulfuric acid and nitric acid. In suggesting resale of products from waste streams, EPA has completely ignored the energy requirements for evaporation of the vast quantities of water which would be required for resale of these products. Also, EPA has completely ignored the problems associated with obtaining the product purity needed to compete in today's market place.

We agree with EPA that spills and leaks can be minimized by employing good housekeeping practices. However, in their proposed rules, we can see no provision for those spills and leaks which inevitably occur in any manufacturing process no matter how good the housekeeping practices are. We do not feel that spills and leaks can be eliminated. For this reason,

we do not believe no discharge of process waste pollutants is practicable and ask that consideration be given for discharges resulting from maintenance and malfunction as directed by the U.S. Court of Appeals in *Essex Chemical v. Ruckelshaus.*

EPA states that "cooling water that picks up process related pollutants from leaks becomes process waste water. It is the responsibility of the plant to monitor cooling water streams for leaks, and to treat contaminated water to the standards established for process waste water discharges." Since the definition of pollutants in process waste water is unclear, we cannot really comment on this statement. If, however, it is meant to say, for example, that sulfuric acid or nitric acid leaks should be treated to zero level of sulfate or nitrates, we disagree, unless dissolved solids are excluded from the subparts.

We contend that no matter how well a plant is operated, leaks and spills will still occur. We believe that the plant should monitor these cooling water streams for leaks. However, we do not agree that these contaminated cooling waters should or can be treated to the same standards established for process waste water discharges namely that of no discharge of process water pollutants.

[5163] Besides, we find it extremely difficult to evaluate the proposed effluent limitations guidelines without a clear definition of what is meant by pollutants. If it is the intent of the proposed regulations to define pollutant as any material not naturally occurring in the influent water and to limit the discharge of this material to a concentration equal to or less than its concentration in the incoming water, then we must take exception. Using this definition, in almost every case plants would have to achieve total recycle of process water to meet the discharge limits. EPA established the proposed limitations on the basis of information contained in the "Development Document". Based on our review of the information contained in this referenced document, we do not feel that no discharge of process pollutants has been demonstrated to be either practicably or economically feasible if pollutant is defined as any material not naturally occurring in the influent water.



**D. Air Pollution Control Equipment**

EPA states that in many manufacturing processes, wet scrubbers are used to control air pollution. We agree. They further state that the scrubbing solution may generally be treated and reused or sold. We disagree since very frequently these dilute solutions cannot be practicably recovered. EPA further states that in some cases, conversion to a dry abatement system is justified because of product recovery. We contend that dry abatement systems are not available to treat all air pollution problems, especially high temperature exhausts. Generalizations such as this have allowed EPA to discount aqueous wastes from air pollution control devices in recommending no discharge of process waste water pollutants.

**E. Incomplete Information**

The Development Document is incomplete. It states on page 269, that the "cost developments, calculations, references and rationales for treatment and disposal techniques pertinent to the inorganic chemicals industry are detailed in Supplement A". It also says that the "costs for specific plant treatment systems are given in Supplement B". These Supplements are not included in the Development Document. Thus, commenters have *no opportunity* to evaluate the information on which some of the conclusions were based.

[5164] **F. Subcategory Comments**

Attachment A is an MCA legal position on the effluent guidelines.

In Attachment B are specific comments pertaining to the following Subcategories of the Inorganic Chemicals Manufacturing Point Source Category: aluminum sulfate, nitric acid, sulfuric acid, sodium silicate, hydrochloric acid, hydrofluoric acid, hydrogen peroxide and sodium metal.

Attachment C contains specific comments on the titanium dioxide production subcategory.

Attachment D contains comments on the statistical misconception in the section of the Development Document on "Effluent Data Analysis".

Attachment E contains prior correspondence of Du Pont relative to the Development Document, final or draft.

We expect that you will give serious consideration to these and past Du Pont comments on the inorganic chemicals guidelines and standards of performance. We trust these will be helpful to EPA in developing equitable guidelines achievable by U.S. industry, yet compatible with a healthy economic environment.

Very truly yours,
L. L. FALK

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## [COMMENTS ON PROPOSED RULES—MANUFACTURING CHEMISTS ASSOCIATION]

[5264]

MANUFACTURING CHEMISTS ASSOCIATION
1825 Connecticut Avenue, N.W. • Washington, D. C. 20009
(202) 483-6126

November 12, 1973

WILLIAM J. DRIVER
President

EPA Information Center
U.S. Environmental Protection Agency
Washington, D. C. 20460

Attention: Mr. Philip B. Wisman

Subject: 40 CFR Part 415—Effluent Limitations Guidelines and Standards of Performance and Pretreatment for Inorganic Chemicals Manufacturing Point Source Category

Dear Sirs:

This letter is submitted on behalf of the Manufacturing Chemists Association (MCA) with regard to proposed Effluent Limitations Guidelines and Standards of Performance and Pretreatment for Inorganic Chemicals Manufacturing Point Source Category (40 CFR Part 415), published in the FEDERAL REGISTER October 11, 1973.



MCA is a non-profit trade association with 170 United States member companies representing more than 90 percent of the production capacity of basic industrial chemicals within this country. As manufacturers and handlers of the chemicals in question, our members have a direct and critical interest in the proposed rules.

We are pleased EPA has reaffirmed that total dissolved solids (TDS) per se do not cause deleterious effects in receiving waters and cannot be practicably limited by across the board application of technology. We concur in the concept of relating limits to specific "harmful" constituents, and we support the consideration the Agency has given to non-water quality and related cost/benefit impacts.

[5265] Our overall reaction to the proposed rules is one of serious concern, as a number of major and critical unresolved issues remain, namely:

- the impracticable, if not impossible, imposition of economically prohibitive zero discharge;
- the need for guidelines as a range for application in a flexible manner;
- levels of control consistent with and supported by a demonstrated technological base;
- those factors mandated by Congress taken into account in the application of effluent limitations;
- pretreatment standards which do not prohibit continued or future industrial participation in joint treatment facilities.

We expressed those concerns in previous communications and now recommend that the Agency:

- adjust its narrow interpretation of the Act and of Congressional intent, and

- restructure its program to one of equitable enforcement of effluent limitations derived from a technically sound guidelines and standards base.

We append herewith technical assessment comments and specific reactions developed by major producers of inorganic chemicals. A copy of related previous communications, listed as follows, can be supplied upon request:

- October 26, 1972—letter by W. J. Driver to Allen Cywin, Director of EPA Effluent Guidelines and Standards Division, relative to a working document on effluent limitation guidance for the inorganics industry category.

[5266] • November 21, 1972—letter by H. B. Brown to Allen Cywin transmitting documents presented by chemical industry experts during EPA's November 16, 1972, Effluent Guidelines Seminar—Inorganic Chemicals.

- May 11, 1973—letter by H. B. Brown to Dr. Martha Sager, Chairman, Effluent Standards and Water Quality Information Advisory Committee, relative to the Committee's functional activities in the EPA development of effluent limitations guidelines.
- August 1, 1973—letter by W. J. Driver to Allen Cywin relative to technical review comments on June 1973 draft Development Document for Effluent Limitations Guidelines and Standards of Performance for Inorganic Chemicals, Alkali and Chlorine Industries and Non-Fertilizer Phosphorus Chemicals Industry.
- October 17, 1973—letter by W. J. Driver to Administrator Train relative to the invitation to comment on proposed alternative approaches by which effluent limitations are to be determined.
- November 12, 1973—letter by W. J. Driver to Administrator Train relative to legal and technical reasons for redirection of EPA effluent limitations program.

Sincerely,

W. J. DRIVER

Attachments

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[6472]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, D. C. 20460

September 25, 1973

Effluent Standards and Water Quality
Information Advisory Committee

**Effluent Standards and Water Quality Information Advisory Committee Evaluation of Current Methods for Establishing Effluent Limitations for Industrial Point Source Discharge**

The Committee has found the current procedures for establishing effluent limitation guidelines for point source industrial discharges to be un-scientific in their disregard of the following items and/or variables:

1. Little consideration has been given to the erroneous and/or incomplete data on which many of the initial draft contractors' reports were based.
2. Little consideration has been given to great differences in individual facilities among generic industries with regard to RAW WASTE LOAD: SIZE OF PLANT: AGE AND TYPE OF PROCESS EQUIPMENT NOW OPERATING IN A GIVEN PLANT: CLIMATIC AND GEOGRAPHIC LOCATION FACTORS.
3. Lack of consideration of differences between SOLUBLE AND SUSPENDED BOD.
4. ECONOMIC EQUITY has been disregarded with respect to instructions in Sect. 304(b) involving cost of application of practical and available technology, particularly as these relate to SMALL PLANTS within generic industries.
5. SPECIFIC EXAMPLES where these items have not been given adequate consideration are to be found in the following studies and published proposed limitations:

[6473]

SEAFOOD PROCESSING
INORGANIC CHEMICALS
PLASTICS AND SYNTHETICS
CEMENT

FRUITS AND VEGETABLES MEAT PACKING
STEAM ELECTRIC POWER IRON AND STEEL
(Others not cited here)

6. Little consideration for some industrial sectors has been given to utility of the guidelines to actual permit conditions in regions.
7. THEREFORE, ES&WQIAC has developed a scientifically defensible method for establishing industrial point source effluent limitations, which method is described in detail in the attached document.

In conclusion, the ES&WQIAC, recognizing the serious need to establish scientifically defensible bases for standards, regulations and guidelines promulgated through the Federal Register, strongly recommends adoption and publication of the analytical procedure described in the attachment. It is generally held that this recommended approach will guarantee a more equitable treatment for both industry and public concerns in determining the impact of Federal Regulations technologically, economically, and from a timetable for implementation viewpoint. The Committee seeks the guidance and direction of the Administrator in the operational direction and implementation of its proposal since this responsibility falls beyond the scope of its immediate mission.

MARTHA SAGER, Chairman
Effluent Standards and Water
Quality Information
Advisory Committee

Dated: September 25, 1973

Attachment:

[6474] **DRAFT ONLY—DO NOT QUOTE OR CITE**

**Draft for Review of Report to the Administrator on Development of Effluent Guidelines and Standards of Performance**

**Summary**

As currently conceived, definitive effluent guidelines are being promulgated for American industry. These guidelines,



strictly applied, can effect undue hardships on a significant number of individual operations. The ES&WQIAC Committee recommends a modification of these guidelines based on state of the art wastewater treatment technology (Best Practical Technology). In addition to the current sub-categorization, considerations which impact an individual industrial operation will be included in models established as BPT. The current data base available from EPA and industry will serve as a baseline to establish raw waste loads. This baseline will be modified as additional data are generated and the predictive models of treatment technology are improved. It is the strong belief of the Committee that these measures will:

1. result in widespread acceptance by the technical community
2. minimize litigation
3. establish a sound basis for legal enforcement of the guidelines.

**Rationale**

There are serious limitations in the approach of establishing definitive and specific effluent limitations for a major segment of American industry without adequate sub-categorization of the industry. [6475] Differences in effluent qualities attainable within an industrial category may arise due to technical limitations of the wastewater treatment process and economic constraints imposed by size, age or level of technology may result in serious competitive disadvantages.

The purpose of this report is to develop guidelines which will establish standards of performance thereby:

1. Provide a technical and economic basis for BPT by sub-categorization of the industrial categories,
2. Establish a procedure to define definitive effluent qualities for the industrial sub-categories defined by (1) above.

The proposed sub-categorization considers four constraints on effluent standards of performance reflecting size, age, process technology and geographical location. These are:

(a) Treatment Technology—the effect of wastewater characteristics on effluent quality attainable by the selected wastewater treatment process (BPT).

(b) Operational Characteristics of the industry—seasonal operations, wide fluctuations in wastewater volume or strength due to multiproduct operations.

(c) Geographic and Climatic considerations—spray irrigation and evaporation lagoons may be applicable to some areas of the country but not others; biological treatment in northern parts of the country is adversely affected by low temperature operation.

(d) Economic equity—in some industrial categories smaller plants [6476] product a higher RWL than do large plants. Economy of scale reflects higher treatment costs for smaller plants than large ones for the same process. Both of these factors may result in undue economic bias on smaller plants within an industrial category.

Examples of the application of (a), (b) and (d) above are detailed in the Appendix of this report. Sub-categorization of the first twenty-seven industries in accordance with these four considerations is shown in Table 1.

For each of the sub-categories within an industrial classification effluent limitations are developed as follows:

1. The RWL and wastewater flows per unit of production for the industrial sub-category are established statistically upon the data base. For purposes of the guidelines one standard deviation of the industry-wide wastewater flows is used for computation. Plants with water use in excess of this should reasonably be expected to attain this level by in-plant conservation practice.
2. BPT for the sub-category is selected.
3. The average effluent quality attainable is determined from process models reflecting present exemplary performance.
4. The average effluent limitation in lbs pollutant/unit production is the product of (1) and (3).
5. Effluent variability is defined considering process operating temperature, variation in RWL and variation in product mix.



[6477]

**Table 1**

**INDUSTRIAL VARIABILITY FACTORS**

| INDUSTRY | A | B | C | D | E |
|---|---|---|---|---|---|
| Asbestos | | | | | x |
| Fiberglass | | | | | x |
| Beet Sugar | | | x | | |
| Cane Sugar | | x | x | x | |
| Cement | | | x | | |
| Dairy | | | x | x | |
| Electricity | | x | | x | |
| Feedlots | | | x | | |
| Fertilizers | | x | x | | |
| Grain Milling | | x | | | |
| Flat Glass | | | | | x |
| Iron & Steel | x | x | | x | |
| Inorganic Chemicals | x | x | x | | |
| Organic Chemicals | x | x | x | x | |
| Non-Ferrous Metals (Bauxite) | | | | | x |
| Plastics & Synthetics | x | x | x | x | |
| Petroleum | x | x | x | x | |
| Pulp & Paper | x | x | x | x | |
| Soaps & Detergents | | | | x | |
| Textiles | x | x | x | x | |
| Seafoods | x | x | x | x | |
| Timber | x | x | | x | |
| Fruits & Vegetables | x | x | x | x | |
| Leather | x | x | | x | |
| Phosphate Manufacturing | | x | x | | |
| Meat Packing | | | x | x | |
| Steam Electric | x | x | x | x | |
| Rubber | x | x | | x | |
| Ferro alloys | x | | x | | |

A = Treatment Technology
B = Operational Characteristics
C = Geological Climatic Considerations
D = Economic Equity
E = None

[6478] In many cases the data required to establish the effluent limitations as defined above are available from the contractors reports, Corps of Engineers permit applications and supplemental data submitted to ES&WQIAC. In some cases additional data will have to be obtained from industry. Mathematical models and computer procedures are presently available or can be readily developed to implement the procedures outlined above.

The methodology proposed by ES&WQIAC affords a mechanism for adequately considering the factors required by Section 304(B)(1)(b) of the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) to be taken into account. It does this by providing a quantitative technically-sound basis for sub-categorization of industrial categories which is necessary to insure that the effluent limitations are (1) consistent with the requirements of the act, and (2) realistically achievable by classes and categories of point sources. It is the opinion of the Committee that implementation of this procedure will minimize controversy and litigation which may result from arbitrarily-established inflexible standards.

[6479] **Effluent Standards Model Development**

1. Develop statistical plots of RWL and flow for the industrial category. Determine if size, age or type of process has a major effect and if so break the statistical plots accordingly. This is based on flow/unit production, BOD/unit production, etc. Eliminate plants which have extensive water reuse or product recovery not normally practiced in the industry. Base line flow/unit production is one standard deviation from the mean.

2. Determine from wastewater treatment operating data on BPT (e.g., activated sludge) whether the wastewater characteristics, e.g., TDS, k, etc., have an effect on process performance under optimal design operating conditions. If so, categories should be established with appropriate effluent qualities.



3. Define operational characteristics of the industry, e.g., seasonal, product mix variability and establish appropriate breaks relative to BPT, e.g., activated sludge for continuous operations, aerated lagoons for seasonal operations, etc. Establish effluent qualities for each grouping.

4. Delineate geographical and climatic effects. BPT in some cases can be defined by area if spray irrigation or evaporation ponds are applicable. In all cases an alternative for discharge using wastewater treatment should be considered in the event that land availability or cost mitigates against the land disposal alternative. Wastewater characteristics, particularly temperature [6480] needs to be considered. For example, spray irrigation of a waste in cold climate areas may be feasible if the waste temperature is sufficiently high. Effluent quality from a biological treatment process should be adjusted for winter operation in cold climates.

5. For each of the groupings defined in (1) the cost of compliance/unit production is generated. Selecting the large plants with prevalent technology, BPT is defined and the costs computed. Costs are computed for all the other groupings using BPT defined above and for alternative wastewater treatment processes. Processes are selected and effluent quality defined for each grouping considering a reasonable cost equity.

6. As additional data is compiled upon on-going operations, these data will be added to the data base for current best practical technology. Treatment models will be updated as the state-of-the-art advances.

This procedure presently only considers BPT. It is the opinion of the committee that the same procedure can be employed to establish standards of performance under BAT. It is felt that many of the older, less efficient industrial plants will phase out or be modernized by 1983 and guidelines should reflect this trend.

• • • •

[6495] MANUFACTURING CHEMISTS ASSOCIATION

1825 Connecticut Avenue, N.W. • Washington, D. C. 20009

(202) 483-6126

November 12, 1973

WILLIAM J. DRIVER
PRESIDENT

Honorable Russell E. Train
Administrator
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D. C. 20460

Dear Mr. Train:

This letter is in support of our October 17, 1973 recommendation that the Agency's effluent limitations program be redirected.

We believe that the proposed EPA effluent guidelines are not consistent with the requirements of the Federal Water Pollution Control Act Amendments of 1972 and that the proposed effluent limitations in the guidelines go far beyond the effluent reductions which Congress intended.

We also believe that if the suggested effluent limitations in the guidelines are adopted and used as *standards* or *requirements* by the EPA's Regional Offices, the regulations will violate the Administrative Procedure Act.

The Administrative Procedure Act requires that an adjudicatory hearing be held where the facts are within the knowledge or province of a few or a particular party. Since only the discharger(s) subject to a subcategory of a guideline know whether the facts support that effluent requirements can be met, an adjudicatory hearing is mandated for subcategories where the requirements are at issue.



Davis confirmed this in Section 7.02 of his *Administrative Law Treatise*. He said that an opportunity for a trial should be given where adjudicative facts are:

> "intrinsically the kind of facts that ordinarily ought not to be determined without giving the parties a chance to know and to meet any evidence that may be unfavorable to them."

[6496] Thus, it is concluded that, if pollutant loadings are considered requirements as opposed to guidance, particular parties affected by subcategory loadings can require adjudicatory hearings. These hearings will bring out the basis for imposing any such requirement on them, since the facts are within their province and apply only to them.

To prevent early litigation on the question of whether the EPA should hold adjudicatory hearings, EPA should publish the procedures EPA will follow in implementing the guidelines. Because EPA will be issuing thousands of permits, the EPA procedure should state that the documents are only to be applied with *discretion as guidance*. The procedure should also state that less stringent limits may be set for individual plants where the guidelines effluent limitations are not achievable.

It is also suggested that EPA issue a policy directive to its Regional Offices directing them to use the limitations as a guide, allowing the Regional Office the opportunity to adjudicate with the discharger the reasonableness of achieving the load limits in the guidelines.

Furthermore, even if the effluent limitations in the guidelines are used as guidance, we question whether the guidelines were intended to include specific effluent limitations. Section 304(b) requires the Administrator to promulgate regulations providing guidelines, which are to be used *as a tool* in establishing effluent limitations. The guidelines were not intended to set forth specific effluent limitations, production-based or not. Production-based effluent limitations go beyond the requirements of Section 304(b).

Section 304(b) requires that the guidelines specify *the level of effluent reduction attainable*. Effluent reductions—not specific effluent limitations—are the basis for determining whether

best practicable control technology or best available technology is achieved by classes or categories of sources. The other factors to be considered in determining the required control measures and practices necessary are set out in Sections 304 (b)(1)(B) and 304(b)(2)(B).

[6497] Sections 301(b)(1)(A) and 301(b)(2)(A) only provide for the administrative achievement of effluent limitations by technology. These sections do not provide that effluent limitations be set forth in the guidelines. Congress intended that a *uniform system of effluent reductions be specified in the guidelines*—not uniform limitations based on production.

The suggested production-based effluent limitations go beyond *effluent reductions which are attainable* through technology under Section 304(b)(1)(A) and Section 304(b)(2)(A). There are inherent faults in the production approach which lead to far too stringent pollutant reductions in many cases. The variation in water usage and diverse process considerations are not taken into consideration in such an approach.

To further establish the unreasonableness of the effluent reductions in the guidelines, we would like to point out that Congress in the Senate Report expressed the expectation that 95 to 99% removal of pollutants be achieved by 1983. Many of the 1977 reductions are at these levels and beyond them. The Inorganic Guidelines provide for zero discharge of pollutants for 14 out of 22 product subcategories.

For guidelines which specify removal efficiencies of 95% to zero discharge by 1977, the guidelines have not specified the measures and practices to be considered under Section 304 (b)(2). Even the requirements of Section 304(b)(1) have only been partly met. To require the application of best available technology economically achievable in 1977, both the requirements of best practicable control technology and best available technology must be taken into account.

Zero discharge is *in theory* achievable if all involved variable factors are resolved and the ultimate disposal of waste residuals is allowed under other provisions of law and all other environ-



mental consequences and stresses are acceptable to all segments of our society. This is not to imply that the imposition of zero discharge is indeed feasible in practice. The unrestricted application of technology makes most things possible, but the sacrifices are great and the economic, social, and environmental consequences would be unacceptable in most instances. The guidelines in [6498] establishing zero discharge requirements have not considered the affordability of the *total* cost to a particular *industry* of achieving zero discharge as well as the effluent reduction benefits of going to zero discharge by 1977 instead of 1983 or later.

Congress established the National Study Commission (NSC) under Section 315 to evaluate all aspects of the total economic, social, and environmental effects of achieving or not achieving the effluent limitations and goals set forth for 1983. The NSC report must be submitted by October 19, 1975. Congress intended that there be a review of the impact of the 1983 effluent limitations before the limits are implemented.

The practical result of applying many of the 1977 effluent limitations is that extensive process and procedural innovations, changes in operating methods, and very substantial process changes will be necessary to meet the guidelines. Best practicable control technology currently available is defined on page 101 of the House Consideration of October 4, 1972 as the:

> "treatment facilities at the end of a manufacturing, agricultural, or other process rather than control technology within the process itself."

Certainly some process changes may be required by 1977 under Section 304(b)(1)(B), but very substantial changes in processing are not required until 1983 under Section 304(b)(2)(A). The guidelines for 1977 would mandate all types of process changes immediately to meet the levels of reduction.

Besides, even if process changes were required by the Act, the control technology for 1977 is not "currently available" for those processes specified. In many instances technology cannot be transferred to treat certain types of troublesome effluents.

We feel that the EPA has not demonstrated that the technology is currently available within a

> "reasonable level of engineering and economic confidence in the viability of the process."

as set out on page 101 of the House Consideration of October 4, 1972.

[6499] It should be further pointed out that Section 301(b)(2)(A) places the burden upon the Administrator to show that zero discharge is technologically and economically achievable. This has not been done. The guidelines fail to recognize the position taken by Mr. Ruckelshaus that the discharge of pollutants on land is not zero discharge but merely tertiary treatment. The water has to go somewhere.

These matters relate to a number of point source categories for which the Agency has or intends to publish proposed rules. Of specific concern to our member companies are the phosphate manufacturing, plastics and synthetics, inorganic chemicals, and organic chemicals point source categories. We encourage the Agency to alter its approach so as to bring about more orderly water pollution control programs under the law.

Sincerely,

W. J. Driver

[6500] January 15, 1974

Mr. W. J. Driver
President
Manufacturing Chemists Association
1825 Connecticut Avenue, N.W.
Washington, D. C. 20009

Dear Mr. Driver:

The Administrator has asked me to respond to the comments of your Association which request that the Agency redirect its approach to establishing effluent limitations guidelines pursuant to sections 301 and 304 of the Federal Water Pollution Control



Act, as amended. While there are difficulties in establishing these guidelines because of the complexity not only of the language of the Act but also the large number of plants within the same industrial categories, I am unable to agree with your reading of the Act that the Environmental Protection Agency (EPA) is proceeding in an unjustified manner.

You have suggested that our procedures for adopting the effluent guidelines violate the Administrative Procedure Act, and that adjudicatory hearings should be provided. The Administrative Procedure Act, however, requires that formal hearings precede administrative rulemaking only "when rules are required by statute to be made on the record after opportunity for an agency hearing. . . ." 5 U.S.C. § 553(c). Since sections 301, 304 and 306 of the FWPCA do not require a hearing at all, let alone require that the decision be made on the record after opportunity for hearing, I believe that there is no basis for your contention that we should provide an adjudicatory hearing. This position has been affirmed in recent Supreme Court decisions. See *United States* v. *Allegheny–Ludlum Steel Corporation*, 406 U.S. 742 (1972), and *United States* v. *Florida East Coast Railway Company*, 410 U.S. 224 (1973). I also call your attention to the case of *The Anaconda Company* v. *Ruckelshaus*, 432 F. 2d 1301 (10th Cir. 1973), which holds that an adjudicatory hearing is not required merely because the rulemaking is directed toward a limited number of sources.

With respect to whether EPA should specify that the guidelines are only guidance and are not mandatory in the issuance of permits, which [6501] would allow at the time of issuance of a permit an opportunity to determine the reasonableness of a particular effluent limitation on the basis of the individual plant situation, it is our opinion that such an approach would contradict the clear requirements of the Act. The basic approach of the Act is to achieve nationally uniform standards so that polluters may not derive unfair economic advantage by locating in States with lax enforcement procedures. This uniformity would be lost if individual cost-based variances could be granted, particularly when the standards may be applied through a permit program administered by a State

which may have different attitudes towards variance applications. For this reason, the guidelines must establish nationally uniform limitations to be implemented by the permit system rather than allowing individual determinations at the time of each permit application. Congress certainly made no reference in either section 304 or section 402 that the factors to be considered in setting effluent standards, which are described in section 304, are also to be applied when issuing individualized permits under section 402. It should be pointed out that section 402(a)(1), in listing the conditions to be imposed in all permits issued under that section, contains no reference to section 304 although several other sections are specifically enumerated. Moreover, many of the factors specified in section 304 clearly only make sense if they are to be considered on an industry-wide basis, *e.g.*, total cost of technology in relation to effluent reduction benefits, and non-water quality environmental impact, including energy requirements.

In fact, where Congress did intend that there be a permit-by-permit analysis of the individual problems of particular discharges, it expressly provided for this. Section 301(c) provides for an individual variance from the 1983 standard based on economic capabilities of the individual discharger and section 302(b)(2) provides for a specific variance from water quality requirements based on cost-benefit balancing. Similar opportunity for individual variances relating to the discharge of thermal pollutants is provided for in section 316(a). The failure of Congress similarly to provide for this type of individualized analysis in section 402 cannot be ignored.

Finally, the legislative history confirms EPA's interpretation:

> The conferees intend that the Administrator or the State, as the case may be, will make the determination of the economic impact of an effluent limitation on the basis of classes and categories of point sources, as distinguished from a plant by plant determination. However, after July 1, 1977, the owner or operator of a plant may seek relief from [6502] the requirement to achieve effluent limitations based on best available technology economically achievable. S. Rep. No. 92-1236, 92nd Cong., 2nd Sess., 121 (1972).



Senator Muskie submitted a statement that was even more explicit: "The conferees intend that the factors described in section 304(b) be considered only within classes or categories of point sources and that such factors not be considered at the time of the application of an effluent limitation to an individual point source within such a category or class. Vol. I, *Legislative History*, p. 172.

One final comment from the legislative history is also relevant. With respect to whether the guidelines should establish percentage effluent reductions which are achievable, rather than specific effluent limitations, the conference committee specifically provided that:

> "Except as provided in section 301(c) of this Act, the intent of the Congress is that effluent limitations applicable to individual point sources within a given category or class be as uniform as possible. The Administrator is expected to be precise in his guidelines under subsection (b) of this section, so as to assure that similar point sources with similar characteristics, regardless of their location or the nature of the water into which the discharge is made, will meet similar effluent limitations." S. Rep. No. 92-1236, 92nd Cong., 2nd Sess., 126 (1972).

In addition, you question the validity of EPA establishing production-based guidelines. While the Act does not speak to the exact format the guidelines are to take, it certainly does not preclude expressing effluent limitations in terms of an amount of pollutant which may be discharged for a corresponding amount of end product produced. The legislative history confirms that Congress anticipated that this would in fact occur: "In no case, however, should any plant be allowed to discharge more pollutants *per unit of production* than is defined by that base level." (emphasis added) S. Rep. No. 92-414, 92nd Cong., 1st Sess., 50 (1971). Whether such approach is inappropriate with respect to any particular industry or sub-category of industries is, of course, a factual matter but it is not, as you suggest, an indefensible approach to setting the standards. Any objections you have to a particular category or sub-category should be made with reference to your comments on the proposed guidelines.

Finally, I would like to discuss what I perceive to be your interpretation that since Congress did not specifically provide for "no discharge" until [6503] at least 1983, EPA is precluded by the statute from requiring this degree of control in 1977. It is the position of EPA that the intent of Congress was to clean up the waters of this country as soon as possible with a goal of achieving total elimination of all discharges no later than 1985. In establishing the two-phase approach to implementing the no-discharge goal, Congress acknowledged the fact that certain industries could not proceed as rapidly as others and thus tempered its requirements for prompt action toward achieving no discharge by providing interim goals which consider the economic and technological problems in relation to the time frame permitted for compliance.

However, in no way do we consider this to mean that the criteria established by Congress to define "best practicable control technology" preclude achievement of "no discharge" by 1977. In establishing the "best practicable control technology," EPA may determine that a no-discharge limitation is in fact "practicable" by 1977 as that degree of limitation is defined in the Act; such a determination—if supported by the facts—does not mean that EPA has established a "best available control technology" standard for 1977, as you suggest.

I believe that this approach carries out the intent of Congress as indicated by the comments of the major participants in the adoption of the 1972 Amendments. Senator Muskie, in the debates on the conference bill, made it very clear that while polluters were to achieve "best practicable technology" by 1977, this did not mean the Administrator could not require compliance by an earlier date. And the same applied to the Phase II "best available technology," with respect to which he said: "The Administrator retains the authority to require the application of these controls at an earlier date, and it is intended that he will require their application at the soonest practicable time." Vol. 2, *Legislative History*, pp. 162-3. It is therefore clear that Congress intended discharges of pollutants to be eliminated as soon as possible within the limitations prescribed in sections 301 and 304. Moreover, this approach is a



sound one from a practical standpoint as well because the deadlines established by the Act are outside dates—the specified degree of reduction must be achieved "not later than" 1977 and "not later than" 1983—and any limitation which can be achieved by a particular source prior to those dates will also result in an improvement of water quality during the interim period, which is certainly within the spirit of the Act. See Section 101(a).

In establishing the guidelines for "best practicable control technology" to be applied in 1977, EPA has applied the criteria specified in sections 301(b)(1)(A) and 304(b)(1) and has determined that in some instances those criteria, although less stringent than the criteria [6504] established for the guidelines in 1983, indicate that no discharge is practicable for certain sources in 1977. EPA has not, as you indicated, ignored the requirements of section 301(b)(2). Those requirements were simply inapplicable to those situations. While you may disagree that EPA's conclusions are justified on the basis of the information available, *i.e.* whether the proper economic, technological, and process factors have been adequately considered, that disagreement does not provide evidence of any misinterpretation of the requirements of the Act by EPA (*i.e.* requiring "best available technology" in 1977). It is solely a technical disagreement with the adequacy of the information to support, within the specified parameters, a finding that no discharge is in fact "practicable." However, a detailed discussion of the basis for those findings is neither relevant nor appropriate to properly respond to the questions you have raised at this time.

With respect to this general subject, I would make one final comment. I feel that your position that a no-discharge standard is only to be required in 1983 is untenable from a policy standpoint as well as a legal one because this approach would often require EPA to permit in 1977 a degree of effluent reduction which would be less stringent than the facilities are capable of doing and would perhaps in some instances reward those sources which have failed to invest in pollution abatement equipment even though it was available. As the legislative his-

tory indicates, Congress clearly envisioned that in 1977, the Administrator could require technology that was not widely in use if it were available and if control practices in the industry were uniformly inadequate. It would be an untenable position for EPA to have to require a lesser degree of control than "no discharge" despite the total availability of control equipment to achieve that limitation at a reasonable cost for the affected industry, merely on the premise that EPA could not require such a degree of control until 1983. As long as the no-discharge standard is justified on the basis of the criteria specified by Congress to be considered in 1977, EPA has the authority to prescribe that degree of control.

Sincerely yours,

Alan G. Kirk, II
Assistant Administrator for
Enforcement and General Counsel (EG-329)

• • • •



**JUDICIAL PROCEEDINGS**

# In the United States Court of Appeals

## FOR THE FOURTH CIRCUIT

E. I. du Pont de Nemours and Co.
1007 Market Street
Wilmington, Delaware 19898

*Petitioner,*

v.

Russell E. Train, as Administrator,
Environmental Protection Agency
401 M Street, S.W.
Washington, D. C. 20460

*Respondent.*

## PETITION FOR REVIEW

**No. 74-1261**

The aforenamed petitioner hereby petitions the Court to review and set aside the Order of the Administrator of the Environmental Protection Agency, dated March 4, 1974, promulgating regulations establishing effluent guidelines for the Inorganics Chemicals Manufacturing Point Source Category under the authority of Section 304(b) of the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1314(b). The regulations are additions to 40 C.F.R. Chapter I, Subchapter N, Part 415 (39 Fed. Reg. ——, March –, 1974).

Respectfully submitted,

Cleary, Gottlieb, Steen & Hamilton
Robert C. Barnard
Douglas E. Kliever
Charles F. Lettow
*Attorneys for Petitioner*
1250 Connecticut Avenue, N.W.
Washington, D. C. 20036
(202) 223-2151

MARCH 5, 1974

# In the United States Court of Appeals

## FOR THE FOURTH CIRCUIT

DOW CHEMICAL COMPANY
Midland, Michigan 48640

UNION CARBIDE CORPORATION
270 Park Avenue
New York, New York 10017

MONSANTO COMPANY
800 North Lindbergh Boulevard
St. Louis, Missouri 63166

HERCULES INCORPORATED
Wilmington, Delaware 19899

*Petitioners,*

v.

RUSSELL E. TRAIN, as Administrator,
Environmental Protection Agency
401 M Street, S.W.
Washington, D. C. 20460

*Respondent.*

## PETITION FOR REVIEW

The aforenamed petitioners hereby petition the Court to review and set aside the Orders of the Administrator of the Environmental Protection Agency, dated March 4, 1974, and January 22, 1974, promulgating regulations establishing effluent guidelines for the Inorganics Chemicals Manufacturing Point Source Category and establishing general provisions for effluent guidelines insofar as applicable to effluent guidelines for the Inorganic Chemicals Manufacturing Point Source Category. Such regulations were promulgated under the authority of Section 304(b) of the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1314(b). The regulations are additions to 40 C.F.R. Chapter I, Subchapter N, Parts 415 (39 *Fed.*



*Reg.* —, March 12, 1974) and 401 (39 *Fed. Reg.* 4532, February 4, 1974).

Respectfully submitted,

CLEARY, GOTTLIEB, STEEN & HAMILTON
ROBERT C. BARNARD
DOUGLAS E. KLIEVER
CHARLES F. LETTOW
*Attorneys for Petitioner*
1250 Connecticut Avenue, N.W.
Washington, D. C. 20036
(202) 223-2151

MARCH 12, 1974

# In the United States Court of Appeals

## FOR THE FOURTH CIRCUIT

FMC Corporation
1617 John F. Kennedy Boulevard
Philadelphia, Pennsylvania 19103

*Petitioner,*

v.

Russell E. Train, as Administrator,
Environmental Protection Agency
401 M Street, S.W.
Washington, D. C. 20460

*Respondent.*

## PETITION FOR REVIEW

The aforenamed petitioner hereby petitions the Court to review and set aside the Orders of the Administrator of the Environmental Protection Agency, dated March 4, 1974, and January 22, 1974, promulgating regulations establishing National Standards of Performance for New Sources in the Inorganics Chemicals Manufacturing Point Source Category and establishing general provisions for Standards of Performance insofar as applicable to Standards of Performance for the Inorganic Chemicals Manufacturing Point Source Category. Such regulations were promulgated under the authority of Section 306 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1316. The regulations are additions to 40 C.F.R. Chapter I, Subchapter N, Parts 415 (39 *Fed. Reg.* ––, March 12, 1974) and 401 (39 *Fed. Reg.* 4532, February 4, 1974).



Respectfully submitted,

Cleary, Gottlieb, Steen & Hamilton
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Washington, D. C. 20036
(202) 223-2151

MARCH 12, 1974

# In the United States District Court

## FOR THE WESTERN DISTRICT OF VIRGINIA

E. I. du Pont de Nemours and Co.
Wilmington, Delaware 19898
(302) 774-1000

Olin Corporation
120 Long Ridge Road
Stamford, Connecticut 06904
(203) 356-2000

FMC Corporation
1617 John F. Kennedy Boulevard
Philadelphia, Pennsylvania 19103
(215) 564-1600

American Cyanamid Company
Wayne, New Jersey 07470
(201) 831-1234

Monsanto Company
800 North Lindbergh Boulevard
St. Louis, Missouri 63166
(314) 694-1000

The Dow Chemical Company
Midland, Michigan 48640
(517) 636-1000

Allied Chemical Corporation
Morristown, New Jersey 07960
(201) 455-2000

Hercules, Incorporated
Wilmington, Delaware 19899
(302) 656-9811

*Plaintiffs,*



v.

Russell E. Train, as Administrator,
Environmental Protection Agency
401 M Street, S.W.
Washington, D. C. 20460

and

John R. Quarles, as Deputy Administrator,
Environmental Protection Agency
401 M Street, S.W.
Washington, D. C. 20460

*Defendants.*

**Civil Action No.**

**74-57**

## COMPLAINT FOR DECLARATORY JUDGMENT AND INJUNCTIVE RELIEF

### I

### DESCRIPTION

1. This action is brought to review and suspend, enjoin, annul and set aside the Orders and Regulations promulgated by the Administrator of the Environmental Protection Agency as 40 C.F.R. §§ 415.210, 415.211, 415.212, and 415.213, 39 *Federal Register* 9611, 9623-24 (March 12, 1974), and as 40 C.F.R. §§ 401.10, 401.11, and 402.12, 39 *Federal Register* 4532 (February 4, 1974) insofar as applicable to 40 C.F.R. §§ 415.210 through 415.213; and, in connection therewith, for a judgment declaring that the regulations issued pursuant to such Orders constitute effluent guidelines under Sections 304(b)(1) and (2) of the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1314(b)(1) and (2), that such regulations are subject to review in this Court and not subject to review under Section 509(b) of the Act, 33 U.S.C. § 1369(b), and that Plaintiffs are not required by law to institute proceedings for judicial review of such regulations within 90 days from promulgation. The Orders and Regulations, attached hereto as Exhibit A, are identified as "Effluent Limitation Guidelines for Existing Sources . . . for the Inorganic Chemicals Manufacturing Point Source Category" and as "Effluent Guidelines and Standards-General Provisions." 40 C.F.R. §§ 415.210 to 415.213 is entitled "Effluent limitation guidelines representing the degree of effluent reduction attainable by application of the best practicable control technology currently available" and apply to the Sulfuric Acid Production Subcategory and are hereinafter referred to as the "Effluent Guidelines."

### II

### PLAINTIFFS

2. E. I. du Pont de Nemours and Company is a corporation organized and existing under the laws of the State of Delaware and does business in the State of Virginia.



3. Olin Corporation is a corporation organized and existing under the laws of the State of Virginia and does business in the State of Virginia.

4. FMC Corporation is a corporation organized and existing under the laws of the State of Delaware and does business in the State of Virginia.

5. American Cyanamid Company is a corporation organized and existing under the laws of the State of Maine and does business in the State of Virginia.

6. Monsanto Company is a corporation organized and existing under the laws of the State of Delaware and does business in the State of Virginia.

7. The Dow Chemical Company is a corporation organized and existing under the laws of the State of Delaware and does business in the State of Virginia.

8. Allied Chemical Corporation is a corporation organized and existing under the laws of the State of New York and does business in the State of Virginia.

9. Hercules, Incorporated, is a corporation organized and existing under the laws of the State of Delaware and does business in the State of Virginia.

10. Each Plaintiff is a manufacturer of inorganic chemicals or other products at plant locations which are or will be subject to effluent guidelines promulgated or to be promulgated by the Environmental Protection Agency under Section 304(b) of the Act.

11. Plaintiffs E. I. du Pont de Nemours and Company, Olin Corporation, American Cyanamid Company, Monsanto Company, and Allied Chemical Corporation, among others, will be adversely affected by the Effluent Guidelines because, among other things, each is a manufacturer and seller of sulfuric acid at one or more plants from which liquid effluent is discharged into the navigable waters of the United States and the Effluent Guidelines, as promulgated by Defendant, require wrongful, illegal and undue control of such effluents.

12. Those and other Plaintiffs will be adversely affected by such Effluent Guidelines because, among other things, they purchase sulfuric acid and such Effluent Guidelines will limit the availability, result in increased price, and/or lower the quality of sulfuric acid.

## III

## DEFENDANTS

13. Defendant Russell E. Train is Administrator of the United States Environmental Protection Agency. The Administrator is charged by Section 101(d) of the Act with administering the Act, including Section 304(b).

14. Defendant John R. Quarles is Deputy Administrator of the Environmental Protection Agency and, at times pertinent, has assumed the position of Acting Administrator.

## IV

## JURISDICTION

15. The jurisdiction of this Court is invoked under the provisions of 28 U.S.C. §§ 1331, 1332, 1337, 1361 and 1651; by the Declaratory Judgment Act, 28 U.S.C. §§ 2201-2202 and by Section 10 of the Administrative Procedure Act, now codified at 5 U.S.C. §§ 701-706, especially 5 U.S.C. § 702. The amount in controversy exceeds $10,000, exclusive of interests and costs.

## V

## VENUE

16. The venue of this proceeding is in this Court by virtue of the provisions of 28 U.S.C. § 1391(e)(4). The residence of Plaintiff Olin Corporation is the State of Virginia; it is a corporation organized and existing under the laws of the State of Virginia.

## VI

## THE FEDERAL WATER POLLUTION CONTROL ACT

17. The Federal Water Pollution Control Act, as amended (The "Act"), 33 U.S.C. §§ 1251 *et seq.*, was substantially



rewritten by The Federal Water Pollution Control Act Amendments of 1972, which were passed by Congress on October 18, 1972, over the veto of the President. Pub. L. 92-500, 86 Stat. 816.

18. As amended, the Act establishes the following regulatory scheme:

(a) Section 301(a) of the Act, 33 U.S.C. § 1311(a), bars or makes illegal "the discharge of any pollutant by any person," except where the person complies with certain specifically mentioned sections of the Act. Among these sections is Section 402 of the Act, 33 U.S.C. § 1342, authorizing the Administrator to "issue a permit for the discharge of any pollutant, or combination of pollutants, notwithstanding Section 301(a)," where the discharge meets the requirements of specified sections of the Act, including Section 301. Section 301(b) requires, among other things, the achievement by July 1, 1977, of "*effluent limitations* for point sources . . . which shall require the application of the best practicable control technology currently available as defined by the Administrator pursuant to Section 304(b) of this Act" and achievement by July 1, 1983, of "*effluent limitations* for categories and classes of point sources . . . which . . . shall require application of the best available technology economically achievable for such category . . . as determined in accordance with regulations issued by the Administrator pursuant to Section 304(b)(2) of this Act." (Emphasis added.)

(b) Section 304(b) (33 U.S.C. § 1314(b)) refers to guidelines for the adoption of effluent limitations as follows:

> "(b) *For the purpose of adopting or revising effluent limitations under this Act the Administrator shall*, after consultation with appropriate Federal and State agencies and other interested persons, *publish within one year of enactment of this title, regulations, providing guidelines for effluent limitations*, and, at least annually thereafter, revise, if appropriate, such regulations. Such regulations shall—
>
> "(1)(A) identify, in terms of amounts of constituents and chemical, physical, and biological characteristics of pollutants, the degree of effluent reduction attainable

through the application of the best practicable control technology currently available for classes and categories of point sources (other than publicly owned treatment works); and

" (B) *specify factors to be taken into account in determining the control measures and practices to be applicable to point sources* (other than publicly owned treatment works) *within such categories or classes.* Factors relating to the assessment of best practicable control technology currently available to comply with subsection (b)(1) of section 301 of this Act shall include consideration of the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application, and shall also take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate;

"(2)(A) identify, in terms of amounts of constituents and chemical, physical, and biological characteristics of pollutants the degree of effluent reduction attainable through the application of the best control measures and practices achievable including treatment techniques, process and procedure innovations, operating methods, and other alternatives for classes and categories of point sources (other than publicly owned treatment works); and

" (B) *specify factors to be taken into account in determining the best measures and practices available to comply with subsection (b)(2) of section 301 of this Act to be applicable to any point source* (other than publicly owned treatment works) *within such categories or classes.* Factors relating to the assessment of best available technology shall take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate; and



"(3) identify control measures and practices available to eliminate the discharge of pollutants from categories and classes of point sources, taking into account the cost of achieving such elimination of the discharge of pollutants." (Emphasis added.)

(c) Section 304 is not specified either in Section 301 as authorizing issuance of an "effluent limitation" with which compliance must be achieved before a discharge can become legal, or in Section 402 as providing authority for establishment of an "effluent limitation" which must be included in a permit authorizing a discharge.

19. Section 509(b) of the Act, 33 U.S.C. § 1369(b), provides for judicial review of certain specified actions of the Administrator:

(a) Section 509(b)(1), 33 U.S.C. § 1369(b)(1) emphasizes the distinction between effluent limitations on the one hand and guidelines for effluent limitations on the other, by providing that any interested person "may" obtain judicial review of the Administrator's actions "(E) in approving or promulgating any effluent limitations or other limitation under Section 301, 302, or 306 . . . in the Circuit Court of Appeals of the United States for the Federal judicial district in which such person resides or transacts such business" and that such actions shall be brought within 90 days from the date of promulgation or other Agency action. The Administrator's action in issuing guidelines under Section 304 is not included in Section 509's enumerated sections under which authority actions taken by the Administrator are to be reviewed in the Court of Appeals.

(b) Section 509(b)(2), 33 U.S.C. § 1369(b)(2), provides that "any action of the Administrator with respect to which review could have been obtained under paragraph (1) of this subsection shall not be subject to judicial review *in any civil or criminal proceedings for enforcement.*" (Emphasis added.) Section 509(b)(2) does not preclude subsequent judicial review of Effluent Guidelines in proceedings under Section 509(b)(1)(F) or any other proceedings other than a civil or criminal proceeding for enforcement.

## VII

## AGENCY PROCEEDINGS

20. Under date of June 1973, the General Technologies Corporation (hereinafter the "Contractor") submitted to the Environmental Protection Agency a document entitled "Draft Development Document for Effluent Limitations Guidelines and Standards of Performance—Inorganic Chemicals, Alkali and Chlorine Industries" (hereinafter "Contractor's Report"). The Contractor's Report, among other things, recommended effluent guidelines of "no discharge of process waste water" for sulfuric acid plants and purported to contain the data base supporting the recommendations.

21. On October 11, 1973, the Environmental Protection Agency published (38 *Federal Register* 28173, 28192) proposed regulations establishing effluent guidelines for the sulfuric acid production subcategory. The proposed effluent guidelines were "no discharge of process waste water pollutants." Shortly thereafter, the Agency made available documents entitled "Draft Development Document for Proposed Effluent Limitations Guidelines and New Source Performance Standards for the Major Inorganic Products Segment of the Inorganic Chemicals Manufacturing Point Source Category" (hereinafter "Draft Development Document") and "Economic Analysis of Proposed Effluent Guidelines—Inorganic Chemicals, Alkali, and Chlorine Industries (Major Products)" (hereinafter "Draft Economic Analysis").

22. On February 4, 1974, the Environmental Protection Agency published final regulations establishing general provisions applicable to effluent guidelines. 39 *Federal Register* 4532. Those Regulations, among other things, define "process waste water" and "process waste water pollutants." 40 C.F.R. § 401.10(q) and (r), 39 *Federal Register* 4532-33.

23. On March 12, 1974, the Environmental Protection Agency published final Effluent Guidelines for the Sulfuric Acid Production Subcategory. 39 *Federal Register* 9633.



24. The Effluent Guideline under Section 304(b)(1)(A) of the Act provides:

> § 415.212 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
>
> In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry sub-categorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NDPES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations. The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by

this section, which may be discharged by a point source subject to the provisions of this subpart after application of the best practicable control technology currently available: *There shall be no discharge of process waste water pollutants to navigable waters.* (Emphasis added.)

25. The Effluent Guideline under Section 304(b)(2)(A) provides:

> § 415.213 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
>
> The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a point source subject to the provisions of this subpart after application of the best available technology economically achievable: *There shall be no discharge of process waste water pollutants to navigable waters.* (Emphasis added.)

26. The Effluent Guidelines do not "specify factors to be taken into account in determining the control measures and practices to be applicable to point sources" (Section 304(b)(1)(B)) within the Sulfuric Acid Production Subcategory. The Effluent Guidelines do not "specify factors to be taken into account in determining best measure and practices available . . . to any point source" (Section 304(b)(2)(B)) within the Sulfuric Acid Production Subcategory.

27. The Preamble to the Regulations and Order establishing the Effluent Guideline states that "a manual entitled 'Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Major Inorganic Products Segment of the Inorganic Chemicals Manufacturing Point Source Category' has been published and is available for purchase from the Government Printing Office." To the best of Plaintiff's knowledge and belief, that document has not been published and is not available from the Government Printing Office.

28. Prior to and after publication of the proposed regulations establishing the Effluent Guidelines, interested persons, including Plaintiffs or their trade associations, submitted written comments on the Effluent Guidelines. Plaintiffs or their trade associations pointed out, among other things, that the Effluent Guidelines as recommended by the Contractor and proposed by the Environmental Protection Agency failed to take into account the factors required by the Act, that the effluent guidelines were not technically or economically practicable, that control costs and impact on the industry estimated in the Contractor's Report, the Draft Development Document and Draft Economic Analysis were materially understated, and that the certain data in the Contractor's Report, the Draft Development Document and Draft Economic Analysis were erroneous, inaccurate or inconsistent with data obtained by the Agency and/or its Contractor.



29. On September 25, 1973, the Effluent Standards and Water Quality Information Advisory Committee, an independent Advisory Committee established under Section 515 of the Act, 33 U.S.C. § 1374, submitted to the Administrator of the Environmental Protection Agency a Report concluding that the Agency's methodology for establishing effluent guidelines, including that for the inorganic chemical industry, was "un-scientific."

30. No public hearing, informal or formal, was held by the Environmental Protection Agency prior to promulgation of the Effluent Guidelines.

## VIII

## PLAINTIFFS' ALLEGATIONS

31. The Effluent Guidelines were promulgated under and by authority of Section 304(b) of the Act.

32. This Court has jurisdiction to review the Effluent Guidelines for Sulfuric Acid Production, a subcategory of the Inorganic Chemicals Manufacturing Point Source Category, and Section 509(b)(1) of the Act does not apply to Effluent Guidelines promulgated under Section 304(b).

33. The Effluent Guidelines, as promulgated, are arbitrary and capricious and beyond the statutory authority of the

Agency in that they purport to be or are said to have the effect of effluent limitations issued pursuant to Section 301 of the Act, 33 U.S.C. § 1311, whereas Section 304(b) of the Act authorizes only the issuance of guidelines to be considered in prescribing effluent limitations. Effluent limitations are to be established giving consideration to the guidelines, and implemented through the proceedings on an application for a discharge permit submitted pursuant to Section 402.

34. The Effluent Guidelines are unlawful, arbitrary and capricious, erroneous in law and not supported by substantial evidence, by evidence in the record, or adequate findings of fact, and are beyond the statutory authority of the Agency, in that, contrary to Section 304(b)(1)(B) and (2)(B), they fail to specify the factors to be taken into account in determining effluent limitations applicable to plants producing sulfuric acid in permit proceedings under Section 402.

35. The Effluent Guidelines are unlawful, arbitrary, capricious, vague, ambiguous, erroneous in law and not supported by substantial evidence, by evidence in the record or adequate findings of fact, and are beyond the statutory authority of the Agency for reasons set forth more fully below:

(a) The Agency failed to take into account adequately the factors required by Section 304(b)(1)(B) and (2)(B), particularly the effect of climate, the availability of land and geologic characteristics, age of plant, and type of process and operating conditions.

(b) The data contained in the record do not support the conclusions reached by the Agency in that, among other things, they are not representative of plants producing sulfuric acid.

(c) Certain data cited in the Development Document are erroneous, inaccurate and not supported by data collected by the Agency and/or the Contractor or provided by Plaintiffs and other persons.

(d) Certain conclusions reached by the Agency are erroneous in that they assume the applicability of control technology not currently applied or demonstrated without adequate consideration of the circumstances under which such technology may be applied.



(e) Costs of effluent control estimated by the Agency are erroneous in that they understate the direct costs of control and fail to account for costs, such as storm water runoff control and protection of groundwater, necessary and ancillary to direct control.

36. Defendant's promulgation of the Effluent Guidelines was arbitrary and capricious and not in accordance with procedures required by the Act and the Administrative Procedure Act in that

(a) Defendant failed to hold a public hearing in connection with the proposed rulemaking.

(b) Defendant failed to provide an adequate statement of basis for the proposed and final promulgation, and failed to provide adequate reason, or any reason at all, for rejection of Plaintiffs' repeated objections to the Contractor's Report, the Draft Development Document and the proposed Effluent Guidelines.

(c) Defendant failed to make practicably available the data allegedly compiled by the Agency and/or its Contractor in support of the Effluent Guidelines.

WHEREFORE, Plaintiffs pray:

1. That judgment be entered declaring that this Court has jurisdiction to review the effluent guideline for the Sulfuric Acid Production Subcategory, and that Section 509 of the 1972 Act is not applicable to judicial review of effluent guidelines promulgated under and by authority of Section 304(b) of the Act.

2. That judgment be entered declaring that the Effluent Guidelines, as specified in Section 304(b), are not effluent limitations and are guidelines to be used, in the discretion of the authorized permit-granting agency, in prescribing effluent limitations to be applied to individual plants (point sources) in permit proceedings under Section 402 in accordance with

factors set forth in Section 304(b)(1)(B) and (b)(2)(B) of the Act.

3. That judgment be entered to suspend, enjoin, annul and set aside the Effluent Guidelines, to enjoin Defendants from using or applying the Effluent Guidelines under Section 402 of the Act, and to remand said Effluent Guidelines to Defendants for promulgation of Effluent Guidelines in accordance with the statute, specifying the factors to be taken into account in determining effluent limitations applicable to plants producing sulfuric acid.

4. That Plaintiffs have such other and further relief as this Court may deem just and proper.

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APRIL 1, 1974



# United States District Court
## FOR THE WESTERN DISTRICT OF VIRGINIA

**Civ. A. No. 74-57**

**E. I. du PONT de NEMOURS AND COMPANY et al., Plaintiffs,**

**v.**

**RUSSELL E. TRAIN et al., Defendants.**

September 27, 1974

Robert C. Barnard, Douglas E. Kliever, and Charles F. Lettow, Cleary, Gottlieb, Steen & Hamilton, Washington, D. C., John L. Walker, Jr., Woods, Rogers, Muse, Walker & Thornton, Roanoke, Va., for plaintiffs.

Bruce J. Chasan, Dept. of Justice, Washington, D. C., Leigh B. Hanes, Jr., U.S. Atty. for the Western District of Virginia, Roanoke, Va., for defendants.

## OPINION AND ORDER

TURK, Chief Judge.

This suit is brought by eight chemical manufacturers seeking declaratory and injunctive relief against the Administrator and Deputy Administrator of the Environment Protection Agency (EPA). The case is presently before the court pursuant to plaintiffs' motion for partial summary judgment and declaratory judgment and the defendants' motion to dismiss for lack of subject matter jurisdiction or alternatively to stay the proceedings.

Plaintiffs ultimately seek to have this court enjoin and set aside certain regulations promulgated by the Administrator of the EPA governing the effluent discharge of sulfuric acid plants on grounds that they are arbitrary, capricious, not supported by substantial evidence, beyond

the statutory authority of EPA and not in accord with procedures of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. § 1251 et seq. ("The Act") and the Administrative Procedure Act. Resolution of these allegations requires factual determinations and they are accordingly not now ripe for disposition. However, plaintiffs also raise several issues of statutory construction not dependent upon factual determinations and which may result in the disposition of the case at this time. The following issues are now before the court for resolution:

1. Whether the Administrator of the EPA has the authority under section 301(b) of the Act to issue regulations establishing effluent limitations for sulfuric acid plants;

2. Whether the regulations in question conform to section 304(b) of the Act and the notice and public participation provisions of the Administrative Procedure Act; and

3. Whether this court has jurisdiction to review the regulations in question and the procedures by which they were promulgated, or whether as defendants contend, this suit should be dismissed for lack of subject matter jurisdiction.

## THE STATUTE

The Federal Water Pollution Control Act Amendments of 1972, while technically amending the Federal Water Pollution Control Act of 1965, 33 U.S.C. § 1151 et seq., is in effect a comprehensive statute in its own right. Section 101(a) of the Act states as its objective "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters," and states as two of its goals "that the discharge of pollutants into the Navigable waters be eliminated by 1985" and "that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983." Of primary interest to this suit are sections 301, 304 and 402, which establish the regulatory framework for achieving the above goals and section 509(b)(1) providing for judicial review of the Administrator's actions.



Section 301(a) makes it unlawful for any person to discharge any pollutant except as in compliance with certain enumerated sections of the Act including section 301. Section 301(b) then states:

> "In order to carry out the objective of this Act, there shall be achieved—
>
> "(1)(A) not later than July 1, 1977, effluent limitations for point sources . . . (i) which shall require the application of the best practicable control technology currently available as defined by the Administrator pursuant to section 304(b) of this Act. . . .
>
> "(2)(A) not later than July 1, 1983, effluent limitations for categories and classes of point sources . . . which (i) shall require application of the best available technology economically achievable for such category or class, which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, as determined in accordance with regulations issued by the Administrator pursuant to section 304(b)(2) of this Act, which such effluent limitations shall require the elimination of discharges of all pollutants if the Administrator finds, on the basis of information available to him (including information developed pursuant to section 315), that such elimination is technologically and economically achievable for a category or class of point sources as determined in accordance with regulations issued by the Administrator pursuant to section 304(b)(2) of this Act. . . ."

Section 304(b) to which section 301(b) refers provides:

> "For the purpose of adopting or revising effluent limitations under this Act the Administrator shall, after consultation with appropriate Federal and State agencies and other interested persons, publish within one year of [enactment of this title], regulations, providing guidelines for effluent limitations, and at least annually thereafter, revise, if appropriate, such regulations. Such regulations shall—

"(1)(A) identify, in terms of amounts of constituents and chemical, physical, and biological characteristics of pollutants, the degree of effluent reduction attainable through the application of the best practicable control technology currently available for classes and categories of point sources . . .; and

"(B) specify factors to be taken into account in determining the control measures and practices to be applicable to point sources . . . within such categories or classes. Factors relating to the assessment of best practicable control technology currently available to comply with subsection (b)(1) of section 301 of this Act shall include consideration of the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application, and shall also take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, nonwater quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate;

"(2)(A) identify, in terms of amounts of constituents and chemical, physical, and biological characteristics of pollutants, the degree of effluent reduction attainable through the application of the best control measures and practices achievable including treatment techniques, process and procedure innovations, operating methods, and other alternatives for classes and categories of point sources . . .; and

"(B) specify factors to be taken into account in determining the best measures and practices available to comply with subsection (b)(2) of section 301 of this Act to be applicable to any point source . . . within such categories or classes. Factors relating to the assessment of best available technology shall take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate; and

"(3) identify control measures and practices available to eliminate the discharge of pollutants from



categories and classes of point sources, taking into account the cost of achieving such elimination of the discharge of pollutants."

The statutory scheme further provides for a national system of discharge permits known as the "National Pollutant Discharge Elimination System" (NPDES) to insure that the control levels established by the Act are achieved. Thus, section 402(a)(1) states:

> "Except as provided in sections 318 and 404 of this Act, the Administrator may, after opportunity for a public hearing, issue a permit for the discharge of any pollutant, or combination of pollutants, notwithstanding section 301(a), upon condition that such discharge will meet either all applicable requirements under sections 301, 302, 306, 307, 308 and 403 of this Act, or prior to the taking of necessary implementing actions relating to all such requirements, such conditions as the Administrator determines are necessary to carry out the provisions of the Act."

Section 402(b-e) further provides that the permit issuing authority be given to the individual states which submit a program which meets the requirements of the Act, although the Administrator retains the power to prevent the issuance of a permit he deems to be "outside the guidelines and requirements of this Act." § 402(d)(2).

Section 509(b) provides for judicial review of the Administrator's determinations:

> "(1) Review of the Administrator's action (A) in promulgating any standard of performance under section 306, (B) in making any determination pursuant to section 306(b)(1)(C), (C) in promulgating any effluent standard, prohibition, or treatment standard under section 307, (D) in making any determination as to a State permit program submitted under section 402(b), (E) in approving or promulgating any effluent limitation or other limitation under section 301, 302, or 306, and (F) in issuing or denying any permit under section 402, may be had by any interested person in the Circuit Court of Appeals of the United States for the Federal judicial district in which such person resides or transacts such business upon appli-

cation by such person. Any such application shall be made within ninety days from the date of such determination, approval, promulgation, issuance or denial, or after such date only if such application is based solely on grounds which arose after such ninetieth day.

"(2) Action of the Administrator with respect to which review could have been obtained under paragraph (1) of this subsection shall not be subject to judicial review in any civil or criminal proceeding for enforcement."

## THE REGULATIONS

On August 6, 1973, the EPA published notice of proposed rulemaking "with respect to effluent limitations, guidelines, standards of performance and pretreatment standards for new sources." 38 Fed.Reg. 21202. On October 11, 1973, EPA published notice of proposed rulemaking for 40 C.F.R. Part 415, "Effluent Limitations Guidelines and Standards of Performance and Pretreatment for Inorganic Chemicals Manufacturing Point Source Category." 38 Fed.Reg. 28174 et seq. These proposed regulations subdivided the inorganic chemicals manufacturing category into twenty-two sub-categories, each representing a different chemical, including sulfuric acid. With respect to sulfuric acid, the proposal discussed the three principal methods of manufacture—double absorption plants, single absorption plants and spent acid plants—and stated that the proposed regulations would not apply to spent acid plants. However, the proposed regulations for both single and double absorption plants established the standard of "no discharge of process waste water pollutants to navigable waters" both "after application of the best practicable control technology currently available" and "after application of the best available technology economically achievable." 38 Fed.Reg. 28192. After receiving additional comments, including comments from seven of the plaintiffs to this suit, 39 Fed.Reg. 9612, final regulations were issued on March 12, 1974 for 40 C.F.R. Part 415 (Inorganic Chemicals Manufacturing Point Source Category). The Administrator declined to change the basic proposed regulations for sulfuric acid production, and the "no discharge of process waste water pollutants" went into effect. 40 C.F.R. §§ 415.212, 415.213, 39 Fed.Reg. 9634. The proposed regulations for sulfuric acid production (as well as other subcategories in the Inorganic Chemicals Manufacturing Group) were modified with regard to the limitations representing best practicable control technology currently available (40 C.F.R. § 415.212), by providing that the "no discharge" standard might be adjusted for certain plants by the Regional Administrator or the State in issuing an NPDES permit; according to the regulation, such an adjustment could be made on the basis of a showing that certain factors peculiar to the discharger are "fundamentally different" than the factors considered in formulating the regulation. 40 C.F.R. § 415.212, 39 Fed.Reg. 9634.



## I

Plaintiffs' statutory construction argument is essentially that the regulations for sulfuric acid plants are not valid effluent "guidelines" complying with the requirements of section 304(b). They contend that the word "guidelines" in section 304(b) is a term of art which contemplates the administrative promulgation of broadly outlined regulations to serve as a starting point for the development of specific restrictions which would then be individualized for each discharger by way of permits issued by the Regional Administrator or State pursuant to § 402 with such permits embodying the "limitations" to be "achieved" pursuant to § 301. In support of this construction plaintiffs note that § 304(b) requires that the guidelines to be published as regulations contain two elements: (1) the degree of effluent reduction "attainable" by 1977 using the "best practicable control technology currently available" and by 1983 using the "best available control measures and practices achievable" for classes and categories of

point sources; and (2) a specification of the factors to be taken into account in determining the control measures applicable to point sources within such categories or classes in order to attain these goals. Thus plaintiffs argue that the regulations were intended to be flexible guidelines and not prescriptive rules applicable across the board to all plants in a given category (i. e. sulfuric acid plants); and the permit granting agency would look to the guidelines for determining the degree of effluent limitation attainable for a given plant.

Plaintiffs specifically contend that the regulations for sulfuric acid plants fail to discuss the statutory factors and hence provide no guidance to the permit-granting authorities. Furthermore, they contend that the EPA's construction and implementation of the Act would frustrate the intent of Congress in allowing the States to play a major role in implementing the Act. They argue that by making the regulations binding prescriptions in the form of specific limitations instead of a "range" of discharge levels together with factors to be taken into account for discrete industrial categories, the EPA has deprived the States of discretion in administering the NPDES program. This is said to be contrary to the intent of Congress expressed in § 101(b) of the Act "to recognize, preserve, and protect the primary responsibilities and rights of the States to prevent, reduce, and eliminate pollution. . . ."

Based on their construction of the Act, plaintiffs then contend that review in the Court of Appeals pursuant to § 509(b)(1) of the Act is not available to challenge the regulations constituting effluent guidelines under § 304(b). Since § 509(b) provides only for review of EPA actions under sections 301, 302, 306, 307 and 402 of the Act, review of other regulatory actions by the EPA as well as certain other agencies empowered to act under the Act would proceed under the Administrative Procedure Act, 5 U.S.C. § 702, and through other jurisdictional statutes such as



the Mandamus and Venue Act of 1962, 28 U.S.C. § 1361.[1] Thus plaintiffs argue that review of § 304(b) guidelines is not encompassed by § 509(b). In support of this position, plaintiffs point out that each of the sections specified in § 509(b) allow regulatory actions by the EPA which may then be enforced by the Administrator pursuant to § 309 or by "any citizen" pursuant to § 505 by way of a civil suit in the district court. They argue that actions taken pursuant to sections not specified in § 509(b), including guidelines issued pursuant to § 304(b), require further implementing steps, and hence a decision of broad precedential effect by a Court of Appeals was not deemed necessary in the first instance.

In contrast, defendants contend that the Act contemplates that the Administrator promulgate actual effluent limitations which will then be uniformly applied by the Administrator or the states in issuing NPDES permits under section 402. According to their construction, section 304(b) guidelines have no direct relationship to permit proceedings under section 402, but merely provide a basis for establishing the effluent limitations. They accordingly argue that the regulations are effluent limitations properly established pursuant to section 301(b).

Defendants view the regulations in question, 45 C.F.R. §§ 415.212, 415.213, as valid effluent limitations promulgated pursuant to section 301(b) with the fixed number of zero for the discharge of process waste water from sulfuric acid plants being the established limitation. In addition they contend that 45 C.F.R. Part 415 establish the "guidelines" required by section 304(b) by subdividing the inorganic chemical manufacturing group into 22 sub-

[1] As a basis for jurisdiction to review what they consider to be section 304(b) "guidelines" plaintiffs also cite 28 U.S.C. §§ 1331, 1332, 1337 and 1651; the Declaratory Judgment Act, 28 U.S.C. §§ 2201-2202; and the Administrative Procedure Act, 5 U.S.C. §§ 701-706.

categories of specific chemicals.[2] Thus defendants contend that the regulations are "guidelines" issued pursuant to section 304(b) by way of subcategorization, but are effluent limitations in terms of the specific numerical restrictions imposed.

On the basis of this construction, defendants argue that jurisdiction to review the regulations is exclusively in the Court of Appeals pursuant to section 509(b)(1)(E). Furthermore, it is asserted that since the "guidelines" are intertwined with and provide a definitional basis for the limitations, they should also be reviewed in the Court of Appeals.

## II

The issue of statutory construction presented in this case is one of first impression[3] in which the court must seek the intent of Congress from the words and structure of the statute and its legislative history. Although the varying interpretations of the Act presented by the parties both find support in the statute and its history, for the reasons which follow the court concludes: (1) that the Administrator was authorized to promulgate by regulation the

[2] The Administrator's approach was explained in the regulations as follows:

> The approach taken in developing effluent limitations guidelines and standards of performance for the inorganic chemicals manufacturing industry was to examine all variables and segment the industry into workable subcategories consistent with these variations. Twenty-two subcategories have been established based on the chemical product manufactured. In cases where two dissimilar processes are used to manufacture the same product separate limitations have been established within the subcategory. Thus, ranges are provided for, as are other factors, by segmenting the inorganic chemicals manufacturing point source category into discrete subcategories, each with its own limitation. 39 Fed.Reg. 9612 (March 12, 1973).

[3] Plaintiffs cite Natural Resources Defense Council v. Train, 6 E.R.C. 1033 (D.D.C. 1973) in support of their construction of the Act. That case involved a suit to compel the Administrator to publish effluent limitation guidelines after expiration of the time period established by the Act. However, that case did not consider the issue of statutory construction now presented.



effluent limitations in issue; (2) that the structural and content requirements of such regulations under section 304(b) were satisfied; and (3) that judicial review of these limitations and guidelines is exclusively in the Court of Appeals under section 509(b)(1)(E).

### 1.

[1] Taken as a whole, the various sections of the Act support the defendants' construction that section 301(b) effluent limitations were intended to be promulgated as regulations apart from section 402 permit proceedings. This is implicitly supported by section 509(b)(1)(E) which provides for review of the Administrator's actions "in approving or promulgating any effluent limitation or other limitation under section 301, 302, or 306. . . ." The independence of such limitations is also implicit in section 505 which provides in subsection (a) for any citizen to sue for a violation of "an effluent standard or limitation under this Act"; but even more revealing is section 505(f) which defines "effluent standard or limitation under this Act" to include six separate definitions among which are: "(1) effective July 1, 1973, an unlawful act under subsection (a) of section 301 of this Act, (2) an effluent limitation or other limitation under section 301 or 302 of this Act; . . ." or (6) "a permit or condition thereof issued under section 402 of this Act. . . ." Obviously under plaintiffs' construction of the Act the second definition quoted above would be redundant with the sixth. Plaintiffs have offered no explanation for this apparent inconsistency with their position.

Plaintiffs would avoid the implication of section 509(b)(1)(E) by construing the word "promulgating" in section 509(b)(1)(E) as applying only to section 302 and the word "approving" as having application to effluent limitations under sections 301 or 306. In support of this construction, plaintiffs point out that section 402(b) allows a state to develop a plan for issuing permits and thus displace the Administrator's authority to issue permits; and further that section 402(d) provides a check on the states

by allowing the Administrator to veto a permit issued by the state:

> "(d)(1) Each State shall transmit to the Administrator a copy of each permit application received by such State and provide notice to the Administrator of every action related to the consideration of such permit application, including each permit proposed to be issued by such State.
>
> "(2) No permit shall issue . . . (b) if the Administrator within ninety days of the date of transmittal of the proposed permit by the State objects in writing to the issuance of such permit as being outside the *guidelines and requirements of this Act.* (plaintiffs' emphasis).

From these sections, plaintiffs argue that the use of "approving" in section 509(b)(1)(E) was in reference to the Administrator's action in reviewing effluent limitations under section 301(b) or standards of performance under section 306 [4] which would be set by the States in permits. They further contend that such approval was a necessary element inasmuch as such a federal connection to a state program was necessary in order to justify review in the federal courts. On the other hand, plaintiffs argue that section 302 [5] provides for the promulgation of effluent

[4] Section 306(b) provides that the Administrator shall publish regulations "establishing Federal standards of performance for new sources" within a category of sources. Plaintiffs point out that section 509(b)(1)(A) specifically provides for review of these "standards of performance." Section 306(c) authorizes the states to develop a procedure for applying and enforcing standards of performance for new sources located within the state which may then be approved by the Administrator. Plaintiffs contend that the implementation of these standards of performance would occur in permit proceedings which would be subject to approval by the Administrator in a manner similar to section 301(b) effluent limitations.

[5] Section 302(a) authorizes the Administrator to "establish" "water quality" related "effluent limitations" when he finds that

> "discharges of pollutants from a point source or group of point sources, with the application of effluent limitations required under section 301(b)(2) (the technology-based limitations to be achieved by 1983), would interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public water supplies. . . ."



limitations by the Administrator in certain defined situations without a provision for state implementation. This is said to explain the use of "promulgating" in section 509(b)(1)(E).

Such a construction of section 509(b)(1)(E) is unconvincing for several reasons. First, section 302 does not require that effluent limitations be "promulgated"; rather it states that "effluent limitations . . . shall be established." The court fails to see a distinction between the establishment of limitations under section 302 and the achievement of limitations under section 301(b) particularly in view of the language used in section 301(e):

> "Effluent limitations, established pursuant to this section or section 302 of this Act shall be applied to all point sources of discharge of pollutants in accordance with the provisions of this Act."

Similarly section 302(c) provides:

> "The establishment of effluent limitations under this section shall not operate to delay the application of any effluent limitation established under section 301 of this Act."

Second, plaintiffs' construction of the interrelationship between section 509(b)(1)(E) and section 402(d)(1) and (2) ignores the fact that sections 402(d)(3), 402(e) and 402(f) allow the Administrator to waive review of permits issued by the States, and thus in such situations, by plaintiffs' analysis, there would be no federal judicial review under section 509(b)(1). Finally, the reference to "guidelines and requirements of this Act" in section 402(d)(2) would appear to be section 304(h) guidelines [6] (as opposed to section 304(b) guidelines) in view of the references to "guidelines" in sections 402(b), 402(c)(1), and 402(c)(2) and 402(e), being specifically to section 304(h) guidelines.

Even more strongly suggestive of the conclusion that section 301(b) limitations were intended to be promulgated as regulations is the interrelationship between sec-

[6] These pertain to the procedural requirements of a state-operated permit program.

tion 301(b) and 304(b). Thus the requirements of sections 304(b)(1)(A) and 304(b)(2)(A) that the Administrator publish regulations which identify the degree of effluent reduction attainable by 1977 and 1983 appears to contemplate the issuance of actual effluent limitations which are referred to in section 301(b)(1)(A) as being "defined by the Administrator pursuant to section 304(b) of this Act" and in section 301(b)(2)(A) as being "determined in accordance with regulations issued by the Administrator pursuant to section 304(b)(2) of this Act. . . ."

Both plaintiffs and defendants quote the definition of effluent limitation in section 502(11) in support of their respective interpretations of the Act:

> "The term 'effluent limitation' means any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance."

Plaintiffs argue that since a state cannot issue regulations the definition indicates that effluent limitations do not involve regulations and that the definition contemplates that both the states and the EPA will have a shared role in establishing effluent limitations. However, the court does not perceive this definition as being inconsistent with the defendants' construction of the Act and the regulations herein challenged since the effluent limitations promulgated by the Administrator may nevertheless be "established" for a given discharger through a permit issued by a state which has satisfied the requirements of section 402.

Further support for the conclusion that NPDES permits issued pursuant to section 402 would embody the effluent limitations previously established by the Administrator is implicit in the fact that section 402(a) requires that such permits meet the "applicable requirements under section 301" but omits any reference to section 304(b) guidelines.

[2] As noted, the regulations herein challenged establish the number of zero as the effluent limitation for both



single and double absorption plants. The court is of the opinion from a consideration of the structure and wording of the Act that the Administrator had the authority to promulgate such limitations under section 301(b) pursuant to his authority under section 304(b). It follows that plaintiffs' substantive challenge to such limitations must be brought in the Court of Appeals pursuant to section 509(b)(1)(E).

**2.**

Plaintiffs further challenge the regulations in question for failing to specify the factors to be taken into account in determining the control measures and practices to be applicable to point sources within such categories or classes, as required by section 304(b)(1)(B) and 304(b)(2)(B). As noted, defendants argue that the subcategorization in effect establishes "guidelines" under section 304(b). They contend that variations in plant age, size, manufacturing processes, raw materials, etc. (section 304(b)(1)(B) and 304(b)(2)(B) factors) were taken into account by such subcategorization. They further argue that this approach is consistent with the statutory scheme and facilitates the achievement of reasonably uniform limitations for similar point sources under section 301 of the Act.

The court notes that although the factors were not set forth as regulations as such, the regulations do indicate that the factors were considered. The regulations in question also indicate that the effluent limitations established could be varied for an individual discharger in an NPDES permit upon a showing "that factors relating to the equipment or facilities involved, the processes applied or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. . . ." 39 Fed.Reg. 9634; 45 C.F.R. § 415.212. In addition, defendants assert (and the regulations note) that the factors in question are analysed in a "Development Document."

[3] In view of the aforementioned conclusion that sections 301(b) and 304(b) intend that the Administrator will publish effluent limitations for classes and categories of point sources, the court is of the opinion that the approach taken by the Administrator in specifying factors is in accord with section 304(b). In this regard it must be noted that the factors required to be specified under section 304(b) were not intended to exist in a vacuum. Rather, both sections 304(b)(1)(B) and 304(b)(2)(B) respectively require such factors in reference to "the assessment of best practicable control technology currently available to comply with subsection (b)(1) of section 301" and "the best measures and practices available to comply with subsection (b)(2) of section 301". Thus the statute appears to contemplate the incorporation of such factors in the effluent limitations established under section 301, which was apparently done in this case. Accordingly, the court believes that any challenge to the Administrator's consideration of various factors or the weight given to each, like the challenge to the actual numerical limitations, is in essence a challenge to the Administrator's action in promulgating effluent limitations under section 301 and must be pursued under section 509(b)(1)(E) in the Court of Appeals.

[4] The court further is of the opinion that section 509(b) is consistent with the above construction of the Act. It is reasonable to assume that by providing original judicial review in the Courts of Appeals of effluent limitations under section 509(b) along with strict time limitations and prohibitions on review by way of criminal or other civil proceedings, Congress sought to establish expeditious and consistent application of limitations.[7] How-

[7] There is very little legislative history relative to section 509(b). The bill as originally passed by the House provided for judicial review in the district courts whereas the Senate bill provided for review of certain administrative actions in the Court of Appeals for the District of Columbia and others in the Courts of Appeal for the appropriate circuit. H.R. 11896, 92d Cong., 2d Sess. § 509(b) (1972); S. 2770, 92d Cong., 1st Sess. § 509(b).



ever, by plaintiffs' construction of the Act, actual effluent limitations would always be individualized for dischargers in NPDES permits, thus limiting the broad precedential effect of any judicial decision approving or rejecting any such limitation. Furthermore, if plaintiffs could challenge section 304(b) guidelines in the district court and section 301(b) limitations in the Court of Appeals, this would create duplicative litigation because of the close interrelationship between these sections and the fact that the administrative record in each suit would be virtually identical. In addition, any successful challenge to guidelines in the district court would affect the limitations which could only be challenged in the Court of Appeals and would thus hinder the goal of prompt judicial review.

**3.**

The legislative history of the Act is generally consistent with the stated conclusions concerning the relationship between sections 301, 304 and 402 and the Administrator's authority to establish the effluent limitations in issue. Both the House Report accompanying H.R. 11896 and the Senate Report accompanying S. 2770 indicate that the Administrator is to establish specific effluent limitations for subcategories of point sources. Thus the House Report stated:

> As required in section 304(b)(1)(A), *the administrator, by regulations, is to identify the degree of effluent reduction attainable by the application of the best practicable control technology currently available for classes and categories of point sources.* By this the Committee expects that the Administrator will concentrate on, but not be limited to, those categories of point sources enumerated in section 306(b)(1)(A) and any which the Administrator might add to that list. *The Committee expects that the identification will be in objective terms and will set out actual performance levels for the classes and categories of point sources rather than prescribing specific control techniques, processes or equipment.*" H. Rep.. No. 92-911, 92d Cong., 2d Sess., 107 (1972), reprinted in Senate Committee on Public Works, Committee Print, A

Legislative History of the Water Pollution Control Act Amendments of 1972, 93d Cong. 1st Sess., at 794 (1973) (hereinafter "Legislative History"). (emphasis added).

The Senate Report similarly indicates that effluent limitations will be established by regulations, and in addition indicates that the defendants' approach in incorporating factors into such limitations is consistent with the statutory scheme.

> "It is the Committee's intention that pursuant to subsection 301(b)(1)(A), and Section 304(b) the Administrator will interpret the term 'best practicable' when applied to various categories of industries as a basis for specifying *clear and precise effluent limitations* to be implemented by January 1, 1976. *In defining best practicable for any given industrial category, the Committee expects the Administrator to take a number of factors into account.* These factors should include the age of the plants, their size and unit processes involved and the cost of applying such controls. In effect, for any industrial category, the Committee expects the Administrator to define a range of discharge levels, above a certain base level applicable to all plants within that category. In applying effluent limitations to any individual plant, the factors cited above should be applied to the specific plant. In no case, however, should any plant, be allowed to discharge more pollutants per unit of production than is defined by that base level." S.Rep. No. 92-414, 92 Cong., 1st Sess. p. 50, U.S. Code Cong. & Admin. News 1972, p. 3716; Legislative History at 1468. (emphasis added).

Plaintiffs argue that the reference to the Administrator establishing a "range of discharge levels" supports their construction of the Act. However, by creating narrow subcategories of point sources subject to different limitations, the Administrator has in effect created a range of discharge levels for various categories of point sources—in this case the category being inorganic chemicals manufacturing. In any case, the determination herein challenged set the limitation of "no discharge of process waste water" for two types of sulfuric acid plants, indicating that in the Administrator's opinion a range of numbers was inappropriate. Whether the substance of this decision was correct is, as noted above, to be challenged under section 509(b)(1)(E) in the Court of Appeals.



In the Conference Report on S. 2770 the following was stated with respect to section 304(b):

> "In determining the 'best available technology' for a particular category or class of point sources, the Administrator is directed to consider the cost of achieving effluent reduction. *The Conferees intend that the factors described in section 304(b) be considered only within classes or categories of point sources and that such factors not be considered at the time of application of an effluent limitation to an individual point source within such a category or class.*
>
> "Except as provided for in section 301(c) of the Act, the intent is that effluent limitations applicable to individual point sources within a given category or class be as uniform as possible. The Administrator is expected to be precise in his guidelines so as to assure that similar point sources with similar characteristics, regardless of their location or the nature of the water into which the discharge is made, will meet similar effluent limitations.
>
> "The Conferees have provided, however, a mechanism for individual point source-by-source consideration in section 301(c). That section provides that the Administrator may modify any effluent limitation based on 'best available technology' to be achieved by July 1, 1983, with respect to any point source, upon a showing by the owner or operator of such point source that an effluent limitation so modified will represent the maximum use of technology within the economic capability of the operator and will result in reasonable further progress toward the goal of the elimination of the discharge of pollutants." 118 Cong.Rec. S. 16874 (daily ed., Oct. 4, 1972; Legislative History at 172. (emphasis added).

This quotation appears to be basically consistent with defendants' interpretation of the Act. Specifically it supports the defendants' construction that section 304(b) factors

may be utilized to create subcategories subject to uniform, specific effluent limitations and refutes plaintiffs' contention that such factors are to have an independent status for the purpose of establishing discharge levels for individual plants.

**4.**

Plaintiffs have raised a final contention concerning the promulgation of the regulations in question which is a concomitant to their other allegations based on their construction of the statute. They argue that in issuing the regulations for inorganic chemicals, the Administrator failed to adhere to the notice and opportunity-to-comment requirements of the Administrative Procedure Act, 5 U.S.C. § 553. There is apparently no dispute that notice of proposed rulemaking was published in the Federal Register on August 6, 1973 (38 Fed.Reg. 21202) and October 11, 1973 (38 Fed.Reg. 28174) and extensive comments were received from the public, including the plaintiffs. The final regulations issued on March 12, 1974 summarized the major comments received since the October 11 notice of proposed rulemaking.

The plaintiffs now contend however that they approached the proposed regulations on the assumption that such regulations would be flexible "guidelines" issued under section 304(b) and not actual effluent limitations to be mechanically applied to all plants in a given subcategory. Thus they argue that by promulgating actual effluent limitations, the Administrator rendered ineffective the notice and public participation requirements of the APA.

Although the record before the court tends to belie plaintiffs' allegations of surprise and prejudice, the court does not now decide this claim. Rather, the court is of the opinion that in view of its construction of the Act, supra, review of this procedural claim should also proceed in the Court of Appeals. Section 509(b)(1)(E) provides for jurisdiction in the Court of Appeals to review "the Administrator's action" in "promulgating any effluent limitation or



other limitation under section 301." This jurisdictional section is unqualified, and the court perceives no reason why review of the adequacy of notice and public participation regarding regulations which establish effluent limitations, should not proceed in the same manner as a suit challenging the substantive action of the Administrator in setting particular limitations.

To summarize, the court concludes that the regulations herein challenged are effluent limitations established by the Administrator pursuant to section 301(b) and 304(b); and that review of both the substance of such limitations and the procedures utilized in establishing the same is exclusively in the Court of Appeals pursuant to section 509 (b)(1)(E). Accordingly, for the reasons stated defendants' motion to dismiss this suit for lack of subject matter jurisdiction is hereby granted.

# United States Court of Appeals
FOR THE FOURTH CIRCUIT

No. 74-2237

E. I. DU PONT DE NEMOURS AND COMPANY, OLIN CORPORATION, FMC CORPORATION, AMERICAN CYANAMID COMPANY, MONSANTO COMPANY, THE DOW CHEMICAL COMPANY, ALLIED CHEMICAL CORPORATION AND HERCULES, INC.
*Appellants*

v.

RUSSELL E. TRAIN, as Administrator, Environmental Protection Agency, and JOHN R. QUARLES, as Deputy Administrator, Environmental Protection Agency
*Appellees*

**On appeal from the United States District Court for the Western District of Virginia, at Roanoke, James C. Turk, Chief District Judge.**

Argued April 22, 1975 Decided Dec. 30, 1975

Before RIVES* and BREITENSTEIN**, Senior Circuit Judges, and WIDENER, Circuit Judge.

Robert C. Barnard (Douglas E. Kliever and Charles F. Lettow, Cleary, Gottlieb, Steen and Hamilton, John L. Walker Jr., on brief) for Appellants; Kathryn A. Oberly, Attorney U.S. Department of Justice, Paul R. Thomson, Jr., Assistant United States Attorney, (Wallace H. Johnson, Assistant Attorney General, Alan G. Kirk, II, Assistant Administrator for Enforcement and General Counsel, Edmund B. Clark, Bruce J. Chasan, Attorneys, U.S. Department of Justice, Ray E. McDevitt, Attorney, Environmental Protection Agency, on brief) for Appellees.

* Senior Circuit Judge, U.S. Court of Appeals for the Fifth Circuit.
** Senior Circuit Judge, U.S. Court of Appeals for the Tenth Circuit.



WIDENER, Circuit Judge:

This is an appeal from a judgment of the United States District Court for the Western District of Virginia dismissing appellants' action for lack of subject matter jurisdiction. Suit was filed in the district court by the appellants, eight chemical manufacturers, who sought review of certain regulations promulgated under the Federal Water Pollution Prevention and Control Act of 1972. 33 USC § 1251 et seq (hereinafter the Act). These regulations, which purport to establish effluent limitations for inorganic chemicals, were issued by the Administrator of the Environmental Protection Agency (EPA), appellee herein, on March 12, 1974, and consist of:

(1) Standards of performance for new plants.

(2) Pretreatment standards for new plants discharging wastes into municipal treatment plants.

(3) Effluent limitations for existing plants. 39 Fed. Reg. 9612 et seq, 40 CFR 415.

The only question presented in this appeal is whether the district courts have jurisdiction to review effluent limitations regulations issued by the Administrator to control effluent discharges from existing plants. A necessary corollary is whether the courts of appeals have jurisdiction under § 509 of the Act, 33 USC § 1369(b)(1), to review, on direct petition for review, regulations for existing plants, for if we have the jurisdiction, the district courts do not.[1] We conclude for the reasons stated below that the

[1] Section 509 provides in relevant part:

"(b)(1) Review of the Administrator's action . . . (E) in approving or promulgating any effluent limitation or other limitation under section 301, 302, or 306, and (F) in issuing or denying any permit under section 402 may be had by any interested person in the Circuit Court of Appeals of the United States for the Federal judicial district in which such person resides or transacts such business upon application by such person."

No question is made here of any concurrent jurisdiction of the district courts and the courts of appeals, and we see nothing in the statute to indicate that Congress intended such concurrent jurisdiction. As noted in *Passenger Corp. v. Passenger Association*, 414 US 453, 458 (1974), "[a] frequently stated principle of statutory con-

courts of appeals do have jurisdiction to review directly the regulations in question, and, therefore, the judgment of the district court must be affirmed.

As the district court noted, the issue presented was largely one of first impression. Although the matter has now been considered directly or indirectly by some few courts, it is yet relatively new and we think it appropriate that we ascertain the intent of Congress in adopting the Act in its present form by looking to the language of the statute itself and its legislative history, as well as the decisions on the subject. The original Act dates from 1948, but did not assume its present form until 1972 when the then existing statutory language was extensively revised. The object of these revisions, as noted in the body of the statute itself, was and is the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. 33 USC § 1261. This goal is to be accomplished primarily through the control of pollutants discharged into navigable waters. It should be kept in mind that the 1972 amendments changed the emphasis in the statutory scheme of water pollution control from that of regulating the quality standard of the body of water involved to regulating not only the quality standard of the body of water but also the quality of effluent discharged into the body of water. Compare the various statutes itemized in footnotes to 33 USCA § 1251, et seq; and see, e.g., Senate Report 92-214, dated October 28, 1971; House Report 92-911 dated March 11, 1972; *CPC International v. Train*, 515 F.2d 1032, 1034-36 (8th Cir. 1975).

In the course of adopting the 1972 amendments, a great deal of attention was focused on the proper function of the States in the regulation and control of overall water quality. This is reflected in Congress' concern, written

struction is that when legislation expressly provides a particular remedy or remedies, courts should not expand the coverage of the statute to subsume other remedies." Cf. § 505(a) of the Act, 33 USC § 1365(a), which specifically confers jurisdiction on the district courts for certain actions under the statute. *NRDC v. Train*, 7 ERC 1123 (D.C. Cir. 1974).



into the statute, that the "primary responsibilities and rights of the States to prevent, reduce and eliminate pollution be preserved." 33 USC § 1251(b). Although the United States in the last analysis regulates, in most cases, the amount of pollution discharged into the nation's waters, the States, through the permit granting plan (§ 402, 33 USC § 1342), are intended to take a large part in the administration and application of the statutory plan, including the application of regulations issued by the EPA as well as the application of the statute.[2] There is here no need to, and we do not, express an opinion as to the extent, construction, effect, or application of any regulation issued by EPA.

Central to the statutory framework within which the permit system is to operate are the regulations providing for or establishing effluent limitations. The EPA contends that the Act contemplates that the Administrator promulgate actual effluent limitations which will be uniformly applied in issuing permits under the Act.[3] According to its

[2] For a good general discussion of the statute through the eyes of EPA's Assistant General Counsel, see Zener, *The Federal Law of Water Pollution Control*, Federal Environmental Law, 683 (West 1974).

[3] Section 402, 33 USC § 1342, establishes the procedure for the issuance of permits under the Act. It states:

"(a)(1) Except as provided in sections 318 and 404 of this Act, the Administrator may, after opportunity for public hearing, issue a permit for the discharge of any pollutant, or combination of pollutants, notwithstanding section 301(a), upon condition that such discharge will meet either all applicable requirements under section 301, 302, 306, 307, and 403 of the Act, or prior to the taking of necessary implementing actions relating to all such requirements, such conditions as the Administrator determines necessary to carry out the provisions of this Act.

"(2) The Administrator shall prescribe conditions for such permits to assure compliance with the requirements of paragraph (1) of this subsection, including conditions on data and information collection, reporting, and such other requirements as he deems appropriate.

. . . .

"(b) At any time after the promulgation of the guidelines required by subsection (h)(2) of section 304 of this Act, the Governor of each State desiring to administer its own permit program for dis-

construction, Congress intended that the Administrator issue effluent limitations through regulations promulgated under § 301(b), 33 USC § 1311(b). That section provides: The Administrator asserts that he has combined his rule-making authority under this section with that specifically provided for under § 304(b), 33 USC § 1314(b), to arrive at the comprehensive set of regulations which are here

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charges into navigable waters within its jurisdiction may submit to the Administrator a full and complete description of the program it proposes to establish and administer under State law or under an interstate compact. In addition, such State shall submit a statement from the attorney general (or the attorney for those State water pollution control agencies which have independent legal counsel), that the laws of such State, or the interstate compact, as the case may be, provide adequate authority to carry out the described program. The Administrator shall approve each such program unless he determines that adequate authority does not exist. . . .

. . . .

"(d)(1) Each State shall transmit to the Administrator a copy of each permit application received by such State and provide notice to the Administrator of every action related to the consideration of such permit application, including each permit proposed to be issued by such State.

"(2) No permit shall issue (A) if the Administrator within ninety days of the date of his notification under subsection (b)(5) of this section objects in writing to the issuance of such permit, or (B) if the Administrator within ninety days of the date of transmittal of the proposed permit by the State objects in writing to the issuance of such permit as being outside the guidelines and requirements of this Act."

"(b) In order to carry out the objective of this Act there shall be achieved—

(1)(A) not later than July 1, 1977, effluent limitations for point sources, other than publicly owned treatment works, (i) which shall require the application of the best practicable control technology currently available as defined by the Administrator pursuant to section 304(b) of this Act. . . .

. . . .

(2)(A) not later than July 1, 1983, effluent limitations for categories and classes of point sources other than publicly owned treatment works, which (i) shall require application of the best available technology economically achievable . . . as determined in accordance with regulations issued by the Administrator pursuant to section 304(b)(2) of this Act."



under review. Since § 509 of the Act states that actions of the Administrator under § 301 are directly reviewable by courts of appeals, the EPA asserts that the district court was correct in dismissing the complaint for lack of jurisdiction.

Appellants, on the other hand, while not challenging the right of this court to directly review any action of the Administrator under § 301, contend that he lacks authority to issue effluent limitation regulations under the provisions of that section. They argue that the language of § 301 requires only that effluent limitations be "achieved," not that they be independently established and achieved. Thus, according to their interpretation of the Act, § 301 merely sets forth the statutory objectives to be attained, and the means of actually reaching these objectives are set out in § 304 of the Act, 33 USC § 1314, which states in part:

> "(a)(1) The Administrator . . . shall develop and publish . . . criteria for water quality. . . .
>
> "(b) For the purpose of adopting or revising effluent limitations under this Act the Administrator shall . . publish . . . regulations providing guidelines for effluent limitations. . . . Such regulations shall—
>
> "(B) specify factors to be taken into account in determining the best measures and practices available to comply with subsection (b)(2) of section 301 of this Act. . . ."

The challenged regulations must, therefore, according to appellants, be deemed to have been issued under § 304(b) and neither under § 301 nor a combination of § 301 and § 304(b) as the EPA asserts. Based upon this interpretation of the statutory provisions in issue, appellants contend that review in the courts of appeals pursuant to § 509(b)(1) is not available and that the action was properly brought before the court below in accordance with the provisions of the Administrative Procedure Act, 5 USC § 701 et seq. As a corollary to this construction, appellants seek a ruling that the effluent limitations for existing point sources issued by EPA are invalid because

they say the Administrator had no authority to issue them under § 301, and could only have issued them under § 304(b).

The case of *CPC International, Inc. v. Train*, 515 F.2d 1032 (8th Cir. 1975), appears to agree with appellants' interpretation of the statutory provisions involved. In that case, the court stressed the fact that § 301 provides the Administrator with no separate power to promulgate effluent limitations for existing point sources. The court noted,

> "[o]ther sections of the Act demonstrate that the omission of such a provision [providing for the issuance of regulations under § 301] was not an oversight, for Congress provided unambiguously for the promulgation of national standards in other sections of the Act. Nationally promulgated standards were expressly mandated for § 306(b)(1)(B). . . ." 515 F.2d at 1038.

Thus, the court concluded that jurisdiction to review such actions of the EPA, which were deemed to have been taken in accordance with § 304(b), did not lie in the courts of appeals because the EPA could not promulgate effluent limitations for existing sources by regulations under § 301.

The court below, on the other hand, ruled that the effluent limitations standards at issue were promulgated pursuant to § 301 "apart from § 402 permit proceedings," and, as a result, it lacked jurisdiction to review. The court pointed first to § 509(b)(1)(E), which refers to judicial review of the Administrator's actions "in approving or promulgating any effluent limitation[s] or other limitation[s] under sections 301, 302, or 306" as supportive of the proposition that effluent limitations could be issued under § 301. In addition, the court noted that § 402(a) requires that permits issued thereunder meet the applicable requirements under § 301, and we note that under § 509(b) review of the action of EPA in issuing a permit is in the courts of appeals. The district court also noted it was of opinion the Administrator had authority under § 301(b)



to promulgate the regulations pursuant to his authority under § 304(b) and concluded that challenges to the effluent limitations must be handled in the courts of appeals.

This or related questions have also been considered by several other courts faced with challenges to EPA regulations under this statute. The Third Circuit, in *American Iron and Steel Institute v. EPA*, 8 ERC 1321 (3d Cir. 1975), disagreed with the reasoning of the Eighth Circuit in *CPC* and concluded that the Administrator was authorized to issue single number effluent limitations under § 301. The jurisdictional question was apparently not raised there. That court considered such effluent limitations as a uniform ceiling, the maximum amount of pollutant in effluent discharge which is permissible. And it also gave effect to § 304 by requiring compliance with it by EPA in preparing meaningful guidelines and addressing statutory factors for application to industry. Since it found § 304 was not complied with by EPA, the court set aside the issued effluent limitations because the limitations might have been less stringent if the statute (§ 304) had been followed in issuing the guidelines and consideration of statutory and individual factors.

In *American Meat Institute v. Environmental Protection* [*sic*, Agency], No. 74-1394 (7th Cir. 1975), the jurisdictional problem was also considered. The court held it had jurisdiction for it considered the effluent limitations were issued under § 301 of the Act. The court stated "the most rational reading of the language of the Act is that § 301 is a source of authority to promulgate effluent limitations, independent of the § 402 permit procedure." This part of the holding is then quite similar to that of the district court in our case. The Seventh Circuit also depended on *Train v. National Resources Defense Council*, 421 US 60 (1975); gave weight to the EPA's construction of the statute; and found it was "sufficiently reasonable to preclude . . . [the court] from substituting its judgment for that of the agency." We express no opinion as to the validity of this latter propo-

sition in the context of a court determining its own jurisdiction which, of course, is conferred by Congress, *Lockerty v. Phillips*, 319 US 182, 187 (1943), and we need not in order to arrive at our conclusion.

In *American Petroleum Institute v. Train*, 7 ERC 1795 (D. Colo. 1974), the court concluded it lacked jurisdiction since the challenged regulations were issued under § 301 as well as § 304, and review should be had in the courts of appeals "even should the Administrator have interpreted his authority under [§ 301] incorrectly." Finally, the court, in *American Paper Institute v. Train*, 381 F. Supp. 553 (D.D.C. 1974), likewise found it lacked jurisdiction to review the challenged regulations even if they were guidelines under § 304 for in that event they would be "only an aid in establishing effluent limitations and since limitations, not guidelines, comprise the standards of performance for the issuance of permits, plaintiff [could not] be heard to complain that it [was] *'adversely affected or aggrieved'* by guidelines, the criteria of section 10(a) of the APA."

Thus, the parties to this dispute point to authority in support of their respective positions. We are of opinion, however, that the central question addressed by both the Eighth Circuit and the district court below, as well as some of the other cases, regarding the EPA's authority under § 301 should not necessarily be dispositive of the jurisdictional issue. Both courts have decided the substantive question of authority to issue the regulations under § 301 in order to reach the question of jurisdiction. With all deference to both courts, we think it unnecessary to decide the substantive question of authority to issue the regulations under § 301 alone in order to decide the question of which federal court has jurisdiction to review them.

We are impressed, as was the court below, by the express language of § 509(b)(1)(E) which refers to "review of the Administrator's action . . . in approving or promulgating any effluent limitation or other limitation under



section 301, 302, or 306." It is significant to note that section 306 provides for the issuance of regulations "establishing Federal standards of performance for *new* sources [of pollutants]." 33 USC § 1316 (emphasis added). Section 301, by way of contrast, is concerned with existing sources.[4] Were we to accept appellants' interpretation of the Act, review of regulations governing existing sources would lie in the district courts under the Administrative Procedure Act, while review of new source standards would be before the courts of appeals under § 509.[5] We do not conclude that Congress intended for review to be bifurcated in this manner.

While there is little legislative history relating to § 509, it is highly significant that the committee reports make no mention of any division of judicial review. It is clear that the House and Senate conferees disagreed over whether there should be judicial review in the district courts or the courts of appeals. Yet, there is no indication of any

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[4] The terms "source" and "new source" are defined in the Act as follows:

> "(2) The term 'new source' means any source, the construction of which is commenced after the publication of proposed regulations prescribing a standard of performance under this section which will be applicable to such source, if such standard is thereafter promulgated in accordance with this section.
>
> "(3) The term 'source' means any building, structure, facility, or installation from which there is or may be the discharge of pollutants." 33 USC § 1316(a)(Supp. 1975).

[5] The practical difficulties occasioned by such a review procedure are illustrated by means of an example. Assume that an existing plant licensed under the Act expands. It is possible that the expanded portion of the plant would constitute a new point source within the meaning of § 306. In that event, the plant could be compelled to maintain two actions simultaneously, one in the district court and another in the court of appeals, in order to challenge the action of the Administrator. The jurisdictional overlap would only add to the complexities already inherent in the statute.

Recognizing the classical prohibition on residents of glass houses who throw rocks, with the Third Circuit we are yet constrained to say the Act is not clear. A simple declaratory sentence, or even a phrase, or a word, could have solved this knotty question, which relates to a substantial part of the industry in the country.

compromise agreement providing for divided review of the EPA standards. To the contrary, the Senate appears to have prevailed on this point. Leg. History (Conference Report), p. 330. A literal reading of the Conference Report without reference to the statute supports the position we take here.

In the House Report discussing judicial review, it was noted that "with the number and complexity of administrative determinations that the legislation requires there is a need to establish a clear and orderly process for judicial review." Although the House Bill originally provided for review in the district courts, this report indicates that Congress did not intend for the actions of the Administrator to be subjected to the complexities inherent in a system of review divided between different courts. Rather, it appears to have been its desire that administrative actions be reviewable, but in a manner not likely to impede enforcement unduly. Leg. History (House Report), p. 823.

The EPA contends that, this being the intent of Congress, § 301 must be viewed as authorizing the promulgation of effluent limitation regulations. Otherwise, they argue, § 509's reference to § 301 would be meaningless. We are not persuaded that this conclusion must necessarily follow in order for this court to find jurisdiction under § 509.

Even if § 301 merely sets out the technological objectives to be attained under the Act, courts of appeals may properly assume jurisdiction to review actions of the Administrator in issuing regulations to achieve these objectives. If § 301 is to be viewed in the manner advocated by the appellants, then § 304(b) must necessarily be deemed the key to the attainment of the objectives set forth in § 301. Thus, to obey the mandate of § 301, "guidelines for effluent limitations" must be promulgated under § 304(b). Construed in this light, any action taken by the Administrator under § 304(b) should properly be considered to be pursuant to the provisions of § 301 and, therefore, reviewable by this court under § 509.



By enacting § 509(b), Congress established a statutory plan to be followed to obtain judicial review of agency actions under the Act. Only those courts upon which Congress has bestowed authority have jurisdiction. See *Whitney Bank v. New Orleans Bank*, 379 US 411, 420, 422.

The district court correctly held it had no jurisdiction. None is conferred upon it by the statute involved. In federal courts, "[j]urisdiction is essentially the power conferred by Congress to decide a given type of case one way or the other." *Hagans v. Lavine*, 415 US 528, 538. In its exercise of its statutory jurisdiction, this court determines whether the Administrator acted within his statutory authority.

Since we are of opinion that Congress has conferred on the courts of appeals the power to decide the merits of this case one way or the other, and not conferred such power on the district courts, we think the judgment of the district court should be affirmed.

Accordingly, the district court was without jurisdiction, and its judgment, if not its entire opinion, is

**AFFIRMED.**

**JUDGMENT**

# United States Court of Appeals

FOR THE FOURTH CIRCUIT

No. 74-2237

E. I. DU PONT DE NEMOURS AND COMPANY, OLIN CORPORATION, FMC CORPORATION, AMERICAN CYANAMID COMPANY, MONSANTO COMPANY, THE DOW CHEMICAL COMPANY, ALLIED CHEMICAL CORPORATION AND HERCULES, INC.

*Appellants*

v.

RUSSELL T. TRAIN, as Administrator, Environmental Protection Agency, and JOHN R. QUARLES, as Deputy Administrator, Environmental Protection Agency

*Appellees*

**Appeal from the United States District Court for the Western District of Virginia.**

THIS CAUSE *came on to be heard on the record from the United States District Court for the Western District of Virginia, and was argued by counsel.*

ON CONSIDERATION WHEREOF, *It is now here ordered and adjudged by this Court that the judgment of the said District Court appealed from, in this cause, be, and the same is hereby affirmed.*

WILLIAM K. SLATE, II

*Clerk*



# United States Court of Appeals

FOR THE FOURTH CIRCUIT

Nos. 74-1261, 74-1290,
74-1296-1304, 74-1357,
74-1406-7, 74-1588-90,
74-1670-1 and 74-1741

E. I. DUPONT DE NEMOURS & COMPANY

*Petitioner,*

v.

RUSSELL E. TRAIN, as Administrator of the Environmental Protection Agency,

*Respondent,*

**On petitions for review of actions of the Administrator of the Environmental Protection Agency.***

Argued April 22, 1975 Decided March 10, 1976

*The following Petitions for Review, all naming Train as Respondent, were consolidated.

74-1261 and 74-1357—DuPont & Co.
74-1290 and 74-1299—Allied Chemical Corp.
74-1296 and 74-1303—FMC Corp.
74-1297 and 74-1304—American Cyanamid Co.
74-1298 and 74-1301—Dow Chemical Co.
74-1300 and 74-1302—Olin Corp.
74-1406 and 74-1407—Stauffer Chemical Co.
74-1588—Diamond Shamrock Corp.
74-1589—PPG Industries, Inc.
74-1590—BASF Wyandotte Corp.
74-1670 and 74-1671—Cities Service Co.
74-1741—NL Industries, Inc.

Before RIVES** and BREITENSTEIN***, Senior Circuit Judges, and WIDENER, Circuit Judge.

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Robert C. Barnard, Douglas E. Kliever and Charles F. Lettow for the Petitioners.

Kathryn A. Oberly for Respondent. With her on the briefs were Wallace H. Johnson, Assistant Attorney General, Edmund B. Clark, Attorney, Department of Justice, Alan G. Kirk, II, Assistant Administrator for Enforcement and General Counsel, and Ray E. McDevitt, Attorney, Environmental Protection Agency.

Briefs of Amici Curiae were filed by Angus Macbeth and Edward L. Strohbehn, Jr., for Natural Resources Defense Council, Frederick M. Rowe, Edward W. Warren, and Robert F. VanVoorhees for American Petroleum Institute, et al., Russell E. Leasure and Elliot S. Azoff for RMI Company, George C. Freeman, Jr., Turner T. Smith, Jr., and William A. Anderson, II, for Allegheny Power System, Inc., et al., Milton A. Smith, Lawrence B. Kraus, James F. Rill, Max N. Edwards, Richard E. Schwartz, and Collier, Shannon, Rill & Edwards for the Chamber of Commerce of the United States, Robert H. Young, Kenneth R. Myers and Archibald A. Campbell for New Jersey Zinc Company.

BREITENSTEIN, Senior Circuit Judge.

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Companies engaged in the production of inorganic chemicals have filed 20 petitions for review of various regulations promulgated by respondent Train as Administrator of the Environmental Protection Agency. The petitions have been consolidated for presentation and disposition. The regulations were promulgated under the Federal Water Pollution Control Act Amendments of 1972. 33 U.S.C. §§ 1251-1376. Herein for brevity and clarity the Administrator at times will be referred to as EPA and the statutory references will be those found in the Act as set out in

**Of the Fifth Circuit, sitting by designation.

***Of the Tenth Circuit, sitting by designation.



86 Stat. 816 et seq.[1] Petitioners will be referred to collectively as Industry.

Industry's attack on the jurisdiction of the court of appeals has been rejected by our opinion in No. 74-2237, *DuPont & Company v. Train.*

The objective of the Act "is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." § 101(a). The goal is the elimination by 1985 of "the discharge of pollutants into the navigable waters." § 101(a)(1). Earlier legislation, which placed on the states the primary responsibility to maintain water quality, had proven inadequate. S. Rep. No. 92-414, 92 Cong. 2d Sess., 2 U.S. Cong. & Adm. News '72 3674. The Act made "a major change in the enforcement mechanism of the Federal water pollution control program from water quality standards to effluent limits." Ibid. at 3675.

Section 301(a) provides that except in compliance with specified sections of the Act "the discharge of any pollutant by any person shall be unlawful." Section 301(b) says that "to carry out the objective of this Act there shall be achieved" stated effluent limitations. Not later than July 1, 1977, those limitations for point sources, except publicly owned treatment works with which we are not concerned, "shall require the application of the best practicable control technology." § 301(b)(1)(A). For July 1, 1983, the requirement is "the best available technology economically achievable." § 301(b)(2)(A).

The foregoing requirements apply to existing sources. For new sources, § 306(a)(1) requires a standard of per-

[1] The parallel U.S. Code citations for the most frequently mentioned sections are:

Section 101—33 U.S.C. § 1251,
Section 301—33 U.S.C. § 1311,
Section 304—33 U.S.C. § 1314,
Section 306—33 U.S.C. § 1316,
Section 402—33 U.S.C. § 1342,
Section 501—33 U.S.C. § 1361,
Section 502—33 U.S.C. § 1362,
Section 509—33 U.S.C. § 1369.

formance "which reflects the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology." Section 306(b)(1)(A) directs the Administrator within 90 days after enactment to publish a list of categories which at the minimum shall include 27 named industries among which is "inorganic chemicals manufacturing." Within one year after publication of the list of categories, the Administrator shall publish Federal standards of performance for new sources within each category. § 306(b)(1)(B).

Primary enforcement of the Act is secured through the permit system established by § 402. Permits for pollutant discharge may be issued by the Administrator, § 402(a)(1), or by a state which has adopted a permit program approved by the Administrator. § 402(b). The Administrator has veto power over a state issued permit. § 402(d)(2). All permits shall comply with the applicable provisions of §§ 301, 306, and other specified sections not including § 304. See § 402(a)(1) and (b)(1)(A).

Section 304 is the cause of much of the controversy. Within one year after enactment, the Administrator must publish "criteria for water quality accurately reflecting the latest scientific knowledge" on enumerated subjects. § 304(a)(1). Within the same period the Administrator shall publish regulations "providing guidelines for effluent limitations." § 304(b). Subsection (b)(1)(A) applies to the 1977 step and subsection (b)(2)(A) to the 1983 step. Each subsection mandates consideration of specified factors.

The Administrator did not act within the one year requirements of § 304. Compliance was not within the realm of reality. There are some 28,000 industrial dischargers and 27,000 others. About 30,000 applications for permits were filed. EPA characterizes the Act as "incredibly complex and demanding." A private suit was brought to compel compliance. The result was a court imposed timetable. *Natural Resources Defense Council, Inc. v. Train*, D.C. Cir., 510 F.2d 692, 710-714.



On March 12, 1974, EPA promulgated "effluent limitations guidelines for existing sources and standards of performance * * * for new sources in the inorganic chemicals manufacturing category of point sources." 39 Fed. Reg. 9612 et seq. These are the regulations under attack. In so doing EPA stated that it acted "pursuant to sections 301, 304(b) and (c), 306(b) and (c) and 307(c)." We are not concerned with § 307 which covers certain toxic pollutants. The regulations prescribe "effluent limitations guidelines for existing sources" and "standards of performance for new sources." 40 C.F.R. 401.10.

Industry attacks the regulations generally and specifically. We shall first consider the objections going to all of the regulations and then discuss those applying to particular sources.

## I

## GENERAL VALIDITY OF REGULATIONS

### (a) Notice.

Industry argues that the regulations are invalid because of EPA's failure to give the notice required by the Administrative Procedure Act, 5 U.S.C. § 553(b). In its October 11, 1973, notice of proposed rule-making, 38 Fed. Reg. 28174 et seq., EPA stated that its proposed action was taken pursuant to §§ 301, 304(b) and (c), 306(b), and § 307(c). Public comments received thereafter are contained in pp. 4884-5346 of the Appendix. In its March 12, 1974, promulgation of the regulations, EPA summarized the comments. See 39 Fed. Reg. 9612-9615.

The rule-making and notice provisions of APA "were designed to assure fairness and mature consideration of rules of general application." *National Labor Relations Board v. Wyman-Gordon Co.*, 394 U.S. 759, 764. Notice is sufficient if it provides a description of the subjects and issues involved. 5 U.S.C. § 553(b)(3) and *California Citizens Band Association v. United States*, 9 Cir., 375 F.2d

43, 49, cert. denied 389 U.S. 844. Industry had adequate notice and took advantage of it.

**(b) EPA's power to establish effluent limitations by regulations.**

This issue goes to the heart of the controversy. Industry says that the Administrator promulgates guidelines to be considered by the permit issuer. EPA says that the Administrator establishes effluent limitations by regulations which, with exceptions to be noted later, have uniform application throughout the nation and which must be applied by the permit issuer.

**(1) Applicable Law.**

The Administrative Procedure Act, 5 U.S.C. § 706 (2)(A), authorizes a reviewing court to set aside agency action which is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." As said in *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416, "the court must consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment." See also *Appalachian Power Company v. Environmental Protection Agency*, 4 Cir., 477 F.2d 495, 506-507. The court may not substitute its judgment for that of the agency. Overton Park, 401 U.S. at 416. If the agency's construction of the controlling statute is "sufficiently reasonable" it should be accepted by the reviewing court. *Train v. Natural Resources Defense Council, Inc.*, 421 U.S. 60, 75.

The grounds upon which the agency acted must be clearly disclosed in, and sustained by, the record. *Federal Trade Commission v. Sperry and Hutchinson Co.*, 405 U.S. 233, 249. The agency must "explicate fully its course of inquiry, its analysis and its reasoning." *Ely v. Velde*, 4 Cir., 451 F.2d 1130, 1139; see also *Appalachian Power Company v. Environmental Protection Agency*, 4 Cir., 477 F.2d 495, 507. After the fact rationalization by counsel in brief and argument does not cure non-compliance by the



agency with the stated principles. *Dry Color Manufacturers' Association, Inc. v. Department of Labor*, 3 Cir., 486 F.2d 98, 104, and particularly cases cited in n. 8.

The function of judicial review of agency action is to determine (1) authority of the agency, (2) compliance by the agency with the necessary procedural requirements, and (3) any claim that agency action is arbitrary, capricious, or an abuse of discretion. Citizens to Preserve Overton Park, Inc., 401 U.S. at 415-417. With these principles in mind, we turn to the regulations.

**(2) Agency Authority.**

The Eighth Circuit has held, *CPC International Inc. v. Train*, 8 Cir., 515 F.2d 1032, that the Administrator may not promulgate regulations establishing effluent limitations for existing sources. The Third and Seventh Circuits have held to the contrary. See *American Iron and Steel Institute v. Environmental Protection Agency*, 3 Cir., slip opinion filed November 7, 1975, p. 8; and *American Meat Institute v. Environmental Protection Agency*, 7 Cir., slip opinion filed November 24, 1975, p. 16. On the mentioned point we disagree with the Eighth Circuit and agree with the Third and Seventh Circuits. Our views on the effect of the regulations will be stated later. The conflict among the circuits emphasizes the confusion caused by this poorly drafted and astonishingly imprecise statute.

The regulations impose "effluent limitations guidelines." The quoted term appears nowhere in the Act. Section 301 refers to "effluent limitations"; § 304 to "guidelines"; and § 306 to "standards of performance." It may be that Congress intended § 304 guidelines to precede § 301 limitations. That did not occur. Under compulsion of a judicially ordered timetable, EPA combined the two steps. The question is the validity of the action taken. Nothing in the Act forbids surmounting the two steps in one jump.

Each party spends much effort in sustaining its position by analysis of the Act and its legislative history. Without going into any details, it is enough to say that the Act is

vague, uncertain, and inconsistent. Support can be had for diametrically opposed conclusions. Except for some statements in committee reports, see e.g. our opinion in No. 2237—*DuPont v. Train*, the two-volume, 1766 page, Legislative History is of little help. In it, statements can be found to uphold almost any position which one cares to take.

We are faced with the problem of making workable a vague, regulatory statute so as to attain the congressional objective that the discharge of pollutants be eliminated. This end may not be reached by quibbling over semantics. Ambiguity must be transformed into practicality.

Section 304(b) specifically authorizes the Administrator to publish "regulations, providing guidelines for effluent limitations." Nothing is said in § 301 about regulations. The source of power to impose § 301 limitations by regulations can only come from § 501(a) which authorizes the Administrator "to prescribe such regulations as are necessary to carry out his functions under this Act."

The question then is what are his functions. Section 101(d) says that he "shall administer this Act." The control technology mentioned in § 301(b)(1)(A) and (b)(2)(A) is that defined and determined by the Administrator under § 304. Section 301(e) refers to "[e]ffluent limitations established pursuant to this section" but does not say who does the establishing. The Act is unworkable unless someone takes the initiative in deciding what limitations are generally applicable to discharges, whether by individual plants, categories, subcategories, classification, or otherwise. Because the control technology is determined by the Administrator, it is reasonable that he establish the limitations generally applicable to categories. Such action is within the performance of his functions.

From a practical standpoint we find no objection to the combining of limitations and guidelines. The Administrator was faced with unrealistic statutory requirements and a court imposed timetable. He had the duty to proceed. His action was "sufficiently reasonable" and should



be accepted by a reviewing court. *Train v. Natural Resources Defense Council, Inc.*, 421 U.S. 60, 75. We conclude that he had authority to promulgate regulations establishing limitations for existing sources.

**(3) Effect of Exercise of Authority.**

The authority to promulgate the regulations must not be confused with the effect of those regulations. Industry says that the effect will violate the Act and, hence, the regulations are invalid.

In part the controversy is whether the reguiations are § 301 limitations or § 304 guidelines. The regulations impose "effluent limitations guidelines." EPA says in effect that the regulations impose limitations which are applicable uniformly throughout the nation and, with some exceptions, must be mechanically cranked into each permit by the issuer. Industry says that the regulations are guidelines for the information of and consideration by, but not binding on, the permit issuer. Inherent in this dispute is the question of national uniformity versus state power and responsibility.

Section 101(a) refers to the "integrity of the Nation's waters," "the national goal," and "the national policy." Section 101(b) says that the policy of Congress is "to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution."

Subsections 402(a)(1) and (b)(1) say that the permits shall comply with §§ 301, 306, and other sections not including § 304. If national uniformity is controlling, state action in issuing permits is inhibited. If the regulations are informational, the states may exercise reasonable discretion in permit issuance.

The Act, § 502(11), defines "effluent limitation" to mean "any restriction established by a State or the Administrator." The pertinent regulation, 40 C.F.R. § 401.11(i), defines the same term to mean "any restriction established

by the Administrator." The conflict must be resolved in favor of the statute. Accordingly, an effluent limitation may be established either by a state or by the Administrator. However, we go around in a circle because § 402(d)(2) gives the Administrator veto power over state action. Section 401.11(i) is set aside and remanded for reconsideration.

For all sources, both existing and new, we believe that the solution which most nearly satisfies congressional intent is recognition that the regulations are presumptively applicable to permit applications. The regulations control unless that presumption is rebutted. Thus, national uniformity, subject to limited specific exceptions, is attained. The balance of general rule and narrow exceptions assures all possible uniformity without sacrifice of the flexibility needed to adjust for disparate plants in dissimilar circumstances.

Both the Act and the regulations recognize permissible variances. Section 301(c) empowers the Administrator to modify the requirements of § 301(b)(2)(A), 1983 phase, upon a showing that modified requirements "(1) will represent the maximum use of technology within the economic capability of the owner or operator; and (2) will result in reasonable further progress toward the elimination of the discharge of pollutants." Industry points out that this does not apply to the 1977 limitations. However, in each of the regulations applicable to the 1977 phase for those subcategories under consideration, there is recognition that adjustments may be appropriate for certain plants and provision for pertinent procedures. See e.g. 40 C.F.R. § 415.62 applying to chlorine. The differences between the provisions of the statute and those of the regulations are of no present concern. Both recognize and permit variances. In any event, the "best practicable control technology" for 1977 may not be construed more stringently than the "best available technology economically achievable" as ameliorated by the qualification of § 301(c) for 1983 limitations.



Provisions for variances, modifications, and exceptions are appropriate to the regulatory process. See *United States v. Allegheny-Ludlum Steel Corp.*, 406 U.S. 742, 755. They have been recognized in actions pertaining to environmental regulations. See e.g. *Portland Cement Association v. Ruckelshaus*, D.C. Cir., 486 F.2d 375, 399, cert. denied 417 U.S. 921, and *International Harvester Co. v. Ruckelshaus*, D.C. Cir., 478 F.2d 615, 641. The administration of these provisions in practice is a matter of speculation at the present. The question will arise when a claim for a variance is made in a permit application.

Neither the Act nor the regulations contain any variance provision for new sources. The rule of presumptive applicability applies to new sources as well as existing sources. On remand EPA should come forward with some limited escape mechanism for new sources.

In the discussion which follows we shall treat the regulations as presumptively applicable to both existing and new sources.

**(c) Agency Compliance with Procedural Requirements.**

The issues involved will be considered separately.

**(1) Subcategories.**

EPA imposed the limitations on the basis of subcategories. Industry desires that the limitations be fixed on the basis of individual plants.

The provision relating to the 1977 step, § 301(b)(1)(A), refers to "effluent limitations for point sources." For the 1983 step the provision, § 301(b)(2)(A), is "effluent limitations for categories and classes of point sources." The section applicable to new sources provides, § 306 (b)(1)(A), that the Administrator shall publish "a list of categories of sources" which shall include specified industries.

"Point source" is defined, § 502(14), as a "conveyance *** from which pollutants are or may be discharged."

Read literally the 1977 requirement is for determination on the basis of individual discharges. The 1983 and new source requirements are on the basis of categories. We do not know the reason for the difference. Whatever it may have been, July 1, 1977, approaches and a holding that EPA must now start over and make the 1977 determinations on the basis of many thousands of individual plants would be chimerical. Practical considerations may not be ignored. A remand of all of the regulations pertaining to the 1977 step would result in administrative delay, have the potential of judicial review, and further postpone attainment of the Act's objectives. In the circumstances we accede to the EPA procedure of promulgating general regulations which impose presumptively applicable effluent limitations for all three steps on the basis of categories.

With regard to the 1977 step, the reference in § 301 (b)(2)(A) to "point sources" is taken to mean that Congress intended that the permit grantor should give individual attention to each "point source" and apply the factors specified in § 304(b)(1)(B). Some of those factors, e.g., "age of equipment and facilities involved," can only be applied on an individual basis. EPA recognized this problem when it included variance provisions in its regulations for the 1977 step. See e.g. 40 C.F.R. § 415.62 and the reference therein to factors which are "fundamentally different."

For the inorganic chemical manufacturing industry EPA established 22 subcategories based on the chemical product manufactured. In addition where dissimilar processes are used to manufacture the same product the limitations are refined to provide separate limitations within the subcategory.

The method of categorization adopted by EPA will reasonably effectuate the congressional objectives. Further subdivision might unduly complicate the administration of the Act. Rulemaking of necessity is general. Problems relating to specific factual situations are for determination at the permit-issuing stage.



**(2) Use of single numbers.**

The regulations impose limitations in terms of single numbers rather than in a range of numbers. Industry attacks this method saying in effect that EPA promulgated guidelines and that guidelines are not absolutes. Nothing in the Act prohibits the Administrator from using single numbers in establishing effluent limitations. The use of a single number limitation for discharge, permits any discharge from zero up to the allowed amount, subject always to the principle of presumptive validity which we have stated.

We are aware that the Third Circuit, *American Iron and Steel Institute v. Train*, supra, has held that the regulations there considered are invalid because "they failed to provide meaningful ranges or guidance in considering individual factors." Slip opinion at p. 37. On the facts presented to us, we cannot accept that conclusion. The EPA has promulgated zero discharge limitations with regard to many of the discharge sources which are before us. If a range is required, a zero discharge provision violates the Act. An objective of the Act is the elimination of all pollutant discharges by 1985. § 101(a)(1). The expertise of the Administrator is persuasive as to whether the limitations be fixed in single numbers or ranges. A claim of arbitrary action in this regard may be considered in court review under § 509(b)(1)(E) of the issuance or denial of a permit. Then specific facts may be presented and the problem will be actual rather than hypothetical. It may be that with some categories ranges are desirable and with others single numbers are appropriate. We are dealing with the general problem and decline to make advisory statements covering specific applicability. For the purposes of the suit before us relating to "inorganic chemicals manufacturing," we accept the Administrator's use of single numbers.

**(3) Statutory Factors.**

Section 304(b)(1)(B), 1977 step, and § 304(b)(2)(B), 1983 step, specify factors to be taken into account to

determine control measures. For existing sources, these are essentially the same except in one respect. The 1977 step includes "consideration of the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application." A balancing is required. For the 1983 step there is no reference to balancing and the listed factors include "cost of achieving such effluent reduction." For new sources the requirement is the effluent reduction "achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives." § 306(a)(1).

A basic problem is the effect to be given the factors specified in § 304(b)(1)(B) and (2)(B). Section 301, which provides for effluent limitations, says in its subsection (1)(A) that the 1977 step requires the technology "as defined by the Administrator pursuant to section 304(b) of the Act." For the 1983 step the language is "in accordance with regulations issued by the Administrator pursuant to section 304(b)(2) of this Act." We know of no reason for the change in language. Be that as it may. The reference in § 301 to § 304 must mean that Congress intended that the factors specified in § 304 are pertinent to effluent limitations established under § 301. Some of the specified factors are of practical applicability only to individual plants, for example "age of equipment and facilities involved." We construe the congressional intent to be that the specified factors shall be applied by the permit issuer in determining whether the presumptively valid effluent limitations should apply to a particular source of discharge. This construction does not derogate the power of the Administrator to issue general regulations fixing presumptively valid effluent limitations on categories.

With reference to the cost-benefit provision Industry contends that EPA must first make an overall cost/benefit analysis and then elaborate how that analysis shall be applied in the consideration of permits for individual plants. We believe that an overall cost/benefit analysis for each subcategory satisfies the statutory requirements. Such



an analysis for each of the many thousands of dischargers and permit applicants would be impractical for general regulations. In acting on permit applications, the issuer will properly consider cost/benefit analysis along with the other factors specified in § 304(b).

We reject the argument of Industry that benefits must be quantified in monetary terms. Nothing in the Act requires this action.

Industry says that as to existing sources EPA is confined to "end of the pipe" treatment systems. The Act does not so provide. The provisions applicable to both the 1977 and 1983 phases, § 304(b)(1)(B) and (2)(B) refer to "measures and practices" and direct the Administrator to consider "process changes."

Both the mentioned subsections require EPA to consider "non-water quality environmental impact (including energy requirements)." Pollutant wastes which may not be recycled and for which there is no commercial market have to be disposed of in some other way. They may be discharged into water, vented into the air, or collected in a land-fill. Air discharge brings into play the Clean Air Act, 42 U.S.C. § 1857 et seq. Land-fills present local problems and the application of local laws. We believe that EPA has given adequate consideration to the non-water environmental impact except in the cases of certain subcategories to be mentioned later.

Energy requirements present a serious problem in the light of the existing energy crisis with spiraling prices. Unquestionably, many of the regulations will require the use of more energy. EPA and Industry are in sharp dispute over the amounts and costs of the energy required. We do not know which is right. One thing is certain. Costs to the consumers will rise. So far as the inorganic chemical manufacturing category is concerned we are satisfied with the EPA actions, except insofar as later mentioned subcategories raise problems.

For the 1977 phase the requirement is "the application of the best practicable control technology currently avail-

able." § 301(b)(1)(A). The Industry reply brief in Nos. 74-1261 etc. at 44 acknowledges that "the 1977 effluent guidelines can be based on the performance of the best plants or performance achieved by no plant if the Agency finds that the level of achievement in the subcategory is uniformly inadequate." Industry conceives of problems which will arise when plants in a subcategory use different processes. This matter is best considered in connection with the specific subcategories.

For the 1983 phase the requirement is "application of the best available technology economically achievable." § 301 (b)(2)(A). In this regard Industry concedes, Ibid., that "the Agency may look to the best performer and even assess technologies that have not been applied." The concern of Industry is the adequacy of the variance provisions. We will not assume inadequacy. The problem can be considered when and if it arises.

For new sources, § 306(a)(1), standards of performance must be both "available" and "demonstrated." Problems connected with new source standards for specific subcategories will be dealt with in our discussion of those subcategories.

With the exceptions noted, we believe that EPA has satisfied the statutory procedural requirements.

**(d) Relationship of the three steps.**

The problem here is the relationship of the 1977 limitations, the 1983 limitations, and the new source standards. The orderly progression is (1) 1977 limitations, (2) new source standards, and (3) 1983 limitations. No instance is called to our attention in which the 1977 limitations are more strict than the new source standards or the 1983 limitations. At times the 1977 limitations are the same as the new source standards.

The difficulty arises from uncertainty as to the relationship of the 1983 limitations to the new source standards. Industry says that the 1983 limitations may not be more



stringent than the new source standards. We are thrust into another area of confusion. Section 306(d) prescribes a grace period. It concerns "standard of performance," a term specifically defined in § 306(a)(1). We do not know whether Congress intended to equate "effluent limitations" as used in § 301(b) and defined in § 502(11) with "standard of performance." Nor do we know the intent of Congress with reference to the applicability of the grace period to plants the construction of which began after the passage of the Act in 1972 and before the promulgation of the regulations in 1974. All we can say is that nothing pertaining to § 306(d) is before us. The construction and application of § 306(d) is for decision when a specific controversy is presented.

Improvements in the techniques of waste disposal can be reasonably expected by 1983. Except for such situations as are later determined to be within the § 306(d) grace period, plants which go on the line between the passage of the Act and 1983 are subject to the 1983 limitations.

The language of the Act is such that the 1983 limitations, to some extent, must be anticipatory. We do not know what will be "the best available technology economically achievable" in 1983. See § 301(b)(2)(A). Section 304(b) requires the publication of regulations within one year. In 1974 the Administrator promulgated regulations setting forth 1983 limitations. Industry was under the statutory compulsion of bringing a petition for review within 90 days of promulgation. See 509(b)(1). The circumstances thus require speculation as to what will be the 1983 technology.

We are presented with an anomaly. We cannot determine the validity of an unknown. Industry is entitled to know the limitations which will confront it in 1983. By its regulations EPA has told Industry what to expect in 1983 and by so doing has given Industry lead time within which to make such changes as may be necessary. For practical purposes our review at this time must be confined to a determination of whether the record discloses a rea-

sonable basis for belief that a new technology will be available and economically achievable.

Clarification may come through EPA review and revision of the regulations as provided in §§ 301(d) and 304(b). We assume EPA compliance with these provisions. See *United States v. Chemical Foundation, Inc.*, 272 U.S. 1, 14-15 and *Douglas v. Noble*, 261 U.S. 165, 170. Section 301(c) authorizes the Administrator to modify the 1983 requirements for a permit application filed after July 1, 1977. We assume that if industry believes that the technology on which the 1983 limitations are based is not available or economically achievable, it will seek modification. We realize that the modification procedure of § 301(c) does not include situations where permit applications were filed before July 1, 1977. If any controversy arises whether a point source, the application for which is filed before July 1, 1977, is entitled to a modification of the 1983 limitations, that controversy will then have to be determined. It is not now before us. Our concern is with general regulations.

Section 509(b)(1) permits a petition for review to be filed after the mentioned 90 day period "only if such application is based solely on grounds which arose after the ninetieth day." This provision, when coupled with the review and revision provisions of §§ 301(d) and 304(b) provides a mechanism for future administrative and judicial action on the basis of actual rather than anticipated conditions.

In our later discussion of the 1983 requirements, we recognize the problems which have been mentioned. In each instance where we set aside a 1983 regulation we do so on the basis of technical objections, either conceded or presently apparent. We decline to engage in speculation.

**(e) Arbitrary and capricious action.**

EPA actions in promulgating the regulations may not be arbitrary, capricious, or an abuse of discretion. Except as noted in our discussion of specific subcategories, we believe that the regulations do not violate the stated principle.



## II
## VALIDITY OF PARTICULAR REGULATIONS PERTAINING TO MORE THAN ONE SUBCATEGORY

**(a) Definitions of "process waste water" and "process waste water pollutants."**

Each of the attacked subparts of 40 C.F.R. Part 415 incorporates the definitions found in 40 C.F.R. § 401. "Process waste water" is defined by § 401.11(q) and "process waste water pollutants" by § 401.11(r).

With particular reference to chlorine, EPA says (Brief in Nos. 74-1261 etc., p. 97) that it will amend the "process waste water" definition "to make clear that it does not extend, in the context of no discharge standards, to unavoidable leaks and spills."

With particular reference to nitric acid, EPA says (Brief in Nos. 74-1261, etc. at 118) that:

> "***the Agency is preparing a proposed amendment to the definition of 'process waste water' and 'process waste water pollutant.' (40 C.F.R. sec. 401.11(q)(r)) which will make clear that in the case of point sources subject to a no discharge limitation, water which has had only incidental contact with raw materials, intermediate products, finished products, byproducts or waste products will not constitute process waste water."

Accordingly, § 401.11(q) and (r) are set aside and remanded for reconsideration.

**(b) Catastrophic rainfall.**

A number of the regulations pertaining to 1983 limitations and new source standards contain exceptions relating to catastrophic rainfall. For example §§ 415.93(b)(2) and 415.95(b)(2), relating respectively to 1983 limitations and new source standards for hydrogen peroxide production, provide:

> "A process waste water impoundment which is designed, constructed, and operated so as to contain the precipitation from the 25 year, 24 hour rainfall event as established by the National Climatic Center, Na-

> tional Oceanic and Atmospheric Administration for the area in which such impoundment is located may discharge that volume of process waste water which is equivalent to the volume of precipitation that falls within the impoundment in excess of that attributable to the 25 year, 24 hour rainfall event, when such event occurs."

The first difficulty is with the word "impoundment." We are not sure what it means in the context in which it is used. Industry's objections go to the extent of the included area. In its discussion of hydrofluoric acid EPA says (Brief in Nos. 74-1261, etc. p. 106) that it will propose an amendment to 40 C.F.R. § 415.81 defining the term "within the impoundment." We believe that the new definition should apply to all regulations now using the term.

Industry objects to the test stated as "the 25 year, 24 hour rainfall event." It says that this was added in the final regulations and it did not have an opportunity to comment. We are referred to nothing in the record which justifies the test. The problem is for the experts and should be solved administratively rather than judicially. Industry says that in an area where precipitation exceeds evaporation the regulation requires an infinitely expanding pond to contain all rainfall (less evaporation) that may fall other than during a catastrophic storm. Absent facts of which we are not aware, the position of industry appears correct. The catastrophic rainfall provisions should be the same for the 1983 phase and for new sources. Rain will affect each.

The various regulations pertaining to catastrophic rainfall are set aside and remanded for reconsideration. The specific regulations affected will be mentioned in the discussion of pertinent subcategories.

## III
## SPECIFIC SUBCATEGORIES

### (1) Chlorine—40 C.F.R. Part 415, Subpart F.

This subpart relates to discharges of pollutants from the production of chlorine and sodium or potassium hydroxide



by the diaphragm cell process and by the mercury cell process. The regulations provide specified limits for pollutant discharge at the 1977 deadline (§ 415.62) and for new sources (§ 415.65). For the 1983 deadline the requirement is no discharge (§ 415.63).

The record pertaining to the 1983 no discharge provision presents unexplained inconsistencies. The Development Document says, App. 5778, that, "There is no known problem which has not been solved by at least one plant of this survey." Contrariwise, EPA in its preamble for proposed rulemaking effluent limitations guidelines for the inorganic chemical industry says, 38 Fed. Reg. 28180, with reference to chlorine plants using the diaphragm and mercury process that "no plants are currently achieving no discharge of process waste water pollutants." If EPA has any explanation of the inconsistency, it is so hidden in a mass of technical detail that we cannot find it.

We have heretofore discussed the relationship between the three steps, 1977, 1983, and new sources. We have also mentioned the waste water definitions and the catastrophic rainfall provisions, all of which are pertinent to § 415.63. Until we know what changes EPA will make and what will be the effect thereof, there is no need to consider the problem further.

Section 415.63 is set aside and remanded for reconsideration.

### (2) Hydrochloric Acid—40 C.F.R. Part 415, Subpart G.

This subpart relates to discharges of pollutants from the production of hydrochloric acid by direct reaction of chlorine and hydrogen. The regulations provide for no discharge of pollutants by existing plants at both the 1977 (§ 415.72) and 1983 (§ 415.73) deadlines and by new sources (§ 415.75).

After referring to the waste water definitions, EPA says (Brief in Nos. 74-1261 etc. at 104-105) that it did not intend to subject hydrochloric acid plants to no discharge stan-

dards "for occasional sources of waste." Accordingly, a remand is required.

We doubt the propriety of EPA's use of Hooker Chemical plant as exemplary to support the no discharge requirements. The record shows that the Hooker plant has no discharge of pollutants "during normal operation" but does during "start-up of production runs." The EPA explanation of the technology applicable to the start-up discharges is not convincing and we doubt whether Hooker can be treated as an exemplary plant. On remand, EPA must clearly articulate its position in these regards.

Sections 415.72, 415.73 and 415.75 are set aside and remanded for reconsideration.

**(3) Hydrofluoric Acid—40 C.F.R. Part 415, Subpart H.**

This subpart relates to discharges of pollutants from the production of hydrofluoric acid. The regulations provide specific limits for pollutant discharge at the 1977 deadline (§ 415.82) and for no discharges at the 1983 deadline (§ 415.83) and for new sources (§ 415.85). Provisions relating to catastrophic rainfall are included in each of the mentioned regulations.

On January 9, 1975, EPA published proposed new regulations for hydrofluoric acid. See 40 Fed. Reg. 1712. The comment period has expired but we do not know what will be the ultimate result. EPA does not expect to promulgate final amendments before March, 1976. In the circumstances, the preferable procedure is to nullify the existing regulations.

Sections 415.82, 415.83, and 415.85 are set aside and remanded for reconsideration.

**(4) Hydrogen Peroxide—40 C.F.R. Part 415, Subpart I.**

This subpart relates to discharges of pollutants from the production of hydrogen peroxide by the electrolytic process and by the oxidation of alkyl hydroanthraquinones (organic process). The regulations provide specified limits



for pollutant discharge at the 1977 (§ 415.92) deadline and no discharge at the 1983 (§ 415.93(a)) deadline and for new sources (§ 415.95(a)) for plants using either process. As to plants using the electrolytic process the no discharge provisions for 1983 and for new sources contain catastrophic rainfall exceptions (§§ 415.93(b)(2) and 415.95 (b)(2)).

EPA says (Brief in Nos. 74-1261 etc. at 192 and Brief in Nos. 74-1296 etc. at 42) that it will reevaluate the 1983 and new source provisions pertaining to the organic process (§§ 415.93(a) and 415.95(a)).

Industry attacks the 1983 no discharge provision for plants using the electrolytic process. The FMC plant at Vancouver, Washington, is the only plant in the United States using this process for hydrogen peroxide production. The purity of its product permits it to compete with plants using the organic process. EPA's analysis (App. 1182-1183) shows that the differences in quality of influent well water and effluent discharge into the Columbia River are negligible. The discharges are environmentally insignificant. We cannot comprehend how a change from the present process to the EPA technology, evaporation and landfill, will be beneficial. Because EPA is to reexamine its waste water definitions and because of the difficulties which we have noted with the catastrophic rainfall provisions, this regulation must be remanded. On reconsideration, EPA must give consideration to the total environmental impact.

The no discharge regulation for new electrolytic plants must also be remanded. Our comments on the definitions of waste water and on the catastrophic rainfall provisions are as applicable here as they are to the 1983 requirements for existing plants.

Sections 415.93 and 415.95 are set aside and remanded for reconsideration.

**(5) Nitric Acid—40 C.F.R. Part 415, Subpart J.**

This subpart relates to the discharges of pollutants from the production of nitric acid in concentrations up to 68 per-

cent. The regulations provide for no discharges at the 1977 and 1983 deadlines for existing plants (§§ 415.102 and 415.103) and for new sources (§ 415.105).

EPA concedes, with particular reference to nitric acid, that the waste water definitions must be reconsidered both as to existing plants (§§ 415.102 and 415.103) and as to new sources (§ 415.105). See EPA brief in Nos. 74-1261 etc. at 117-118 and in Nos. 74-1296 etc. at 66-67.

On the recycling problem, the record is so confused that we cannot say with any certainty which party is right. Hopefully, the remand will result in clarification. On the cost analysis, Industry objects to EPA's use of information obtained from sulfuric acid plants. EPA responds that in the time available it had no alternative. Now, it has had more time and should specify the facts and reasons on which its conclusions are based.

Sections 415.102, 415.103 and 415.105 are set aside and remanded for reconsideration.

**(6) Sodium Carbonate—40 C.F.R. Part 415, Subpart O.**

This subpart relates to discharges of pollutants from the production of sodium carbonate by the Solvay process. The regulations applicable to existing sources both at the 1977 and 1983 deadlines (§§ 415.152 and 415.153) specify the permissible discharges with reference to both TSS and pH. TSS means total suspended nonfilterable solids. § 401.11 (s)(5). The term pH is a logarithmic expression of the concentration of hydrogen ions in water, with 7 pH indicating a neutral condition. Lower pH values show acidity and higher values alkalinity. For new sources the requirement is no discharge (§ 415.155).

EPA admits errors in the TSS requirements (Brief in Nos. 74-1261 etc. at 134) and says (Ibid. at 135) it will "not oppose a remand of the suspended solids limitations in 40 C.F.R. Section 415.152 and 415.153 for consideration of the appropriate flow rate and the projected economic impact on the industry."



Industry contends that the pH requirement should also be remanded. We agree. Nothing in the record sustains the EPA conclusion that neutralization of the inherently alkaline effluent from a sodium carbonate plant is practicable or economically achievable. The justification in the brief is no substitute for agency action not sustained by the record. Also, the cost of neutralization should be considered along with the cost of removal of suspended solids. On remand EPA should make clear the technologies which it deems available.

The regulation for new sources mandates that there be no discharge. This is in conflict with the EPA statment, 38 Fed. Reg. 28179, that:

> "§ ***no technology is available and economically achievable for the elimination of discharge from Solvay plants."

The EPA brief comments (Brief in Nos. 74-1296 at 53) that "The Solvay process generates staggering quantities of waste products." It also says (Ibid.):

> "As has been seen, there are practicable alternatives to discharge from a new Solvay plant if one is ever built. The Agency properly set the standard of performance fo[illegible]is unlikely plant."

The EPA alternatives are (1) use of deep well injections and (2) production of sodium carbonate by the Trona ore process. Both of these present non-water environmental problems. Deep-well injection raises both federal and state problems and has been the subject of EPA litigation. See *e.g. United States v. Armco Steel Corporation*, S.D. Tex., 333 F. Supp. 1073. Trona plants present an air pollution problem which EPA has recognized. See 39 Fed. Reg. 25339.

Industry argues that EPA has no statutory power to force industry to use a certain process. There is no need to explore the legal ramifications of this contention. It is enough to say that the technology on which EPA bases its new source standards is neither available nor demonstrated when regard is had for non-water environmental impact.

Sections 415.152, 415.153, and 415.155 are set aside and remanded for reconsideration.

**(7) Sodium Dichromate—40 C.F.R. Part 415, Subpart Q.**

This subpart relates to discharges of pollutants resulting from the production of sodium dichromate and by-product sodium sulfate. The regulations provide for permissible, specified discharges by existing plants at the 1977 deadline (§ 415.172) and by new sources (§ 415.175). No pollutant discharge is permitted at the 1983 deadline except discharges attributable to catastrophic rainfall (§ 415.173).

Industry attacks the 1983 no discharge provision. In its discussion of sodium dichromate, EPA said, 39 Fed. Reg. 9614:

> "The proposed new source performance standards were based on evaporation to attain no discharge of process waste water pollutants. Considering nonwater environmental aspects, the new source performance standards have been revised to require good water conservation and best practicable technology."

EPA's rationalization of its actions is not convincing. It says (Brief, Nos. 74-1261 etc. at 171) that "[a]s to the reasonableness of the Administrator's conclusion that evaporation represents an available technology for 1983, there can be no serious challenge." It then says (Ibid. at 173) that its new source provision was in response to Industry's concern that "evaporation had not been sufficiently demonstrated on the volumes encountered in the manufacture of sodium dichromate." It also says (Ibid. at 174) that it deferred imposition of zero discharge for existing sources until 1983 "because of its reassessment of the technological development of evaporative systems on waste loads as large as those generated by this subcategory, as well as energy consumption demands in a time of general concern about energy supply." We are confused rather than convinced. The manufacture of sodium dichromate produces large quantities of waste discharges. Disposition of these wastes by evaporation imposes a severe demand on use of energy.



EPA does not disclose what evaporative technology it uses in making its cost analysis, its energy study, or its consideration of the non-water environmental impact.

In essence EPA asks us to have faith in its expertise and, on that ground, uphold its actions. Judicial review must be based on something more than faith and respect. Confidence and deference do not substitute for reasoned analysis sustained by the record. In the circumstances we see no need to explore the technical arguments of the parties going to environmental impact, costs, and energy requirements. We are hopeful that on remand EPA will give further consideration to these problems.

Section 415.173 is set aside and remanded for reconsideration.

**(8) Sodium Metal—40 C.F.R. Part 415, Subpart R.**

This subpart relates to discharges of pollutants from the production of sodium metal by the Downs cell process. The regulations provide specified limits for pollutant discharge at the 1977 deadline (§ 415.182) and no discharge at the 1983 (§ 415.183) deadline and for new sources (§ 415.185). The no discharge provisions for 1983 and for new sources contain catastrophic rainfall exceptions (§§ 415.183(b) and 415.185(b)).

The pertinent Industry brief is presented by Stauffer Chemical Company. EPA says that Stauffer has no standing because it is not a producer. Stauffer is admittedly a purchaser and user of sodium metal. Section 509(b)(1) of the Act authorizes review "by any interested person." Section 502(5) defines "person" to include "a corporation." Accordingly Stauffer has the requisite standing.

Industry attacks the 1977 requirement that the TSS average daily discharge shall not exceed 23 kilograms per 1,000 kilograms of product. EPA says that this can be achieved by use of "well designed settling basins." With general reference to the inorganic chemical industry, the Development Document says that the performance and cost of

settling basins "depends on the amount of waste involved and the settling characters of the solids suspended." The trouble is that EPA does not demonstrate how this general principle applies to sodium metal. EPA exemplary plant, the DuPont plant at Memphis, does not achieve the requirement of the regulation.

Industry says that EPA imposed the no discharge limit without regard for the environmental impact or the energy costs, factors which § 304(b)(2)(B) of the Act requires EPA to specify. Specifically, Industry says that EPA did not take into account the cost of solid waste disposal and failed to consider energy requirements. The unsatisfactory EPA response is that it did pay attention to these factors and that it developed estimates for all treatment measures of general application to the inorganic chemical industry. It does not relate any of these to the particular conditions found in the sodium metal industry.

EPA concedes (Brief in Nos. 74-1261 etc. at 167) that the Development Document does not "include significant energy costs associated with no discharge." It goes on to say that it estimated the capital cost of attaining no discharge. An estimate of capital cost is not consideration of the environmental impact or of the energy requirement.

Because we are convinced that the 1983 regulation must be set aside, we need not delve into the detailed attack made by Industry on the EPA technology or the complex answers thereto. On remand EPA must do a better job of articulating the facts and reasons upon which its conclusions are based.

EPA justifies its no discharge requirement for new sources by reliance on the "technological basis" for the 1983 limitations (Brief in Nos. 74-1296 etc. at 30). Because we set aside the 1983 regulation, no need exists for further discussion of the problem in connection with new sources.

Our earlier action in regard to the catastrophic rainfall provisions applies to both the 1983 and new sources provisions.



Sections 415.182, 415.183 and 415.185 are set aside and remanded for reconsideration.

**(9) Sodium Silicate—40 C.F.R. Part 415, Subpart S.**

This subpart relates to the discharge of pollutants from the production of sodium silicate. The regulations applicable to existing sources by July 1, 1977, specify the permissible discharges. § 415.192. For 1983 and for new sources no pollutant discharge is permitted. §§ 415.193 and 415.195.

Consideration of the sodium silicate regulations stretches our patience to the breaking point. EPA did not furnish the data on its exemplary plant until after the Industry's first brief. After receipt of the data, counsel for Industry wrote counsel for EPA expressing concern over the fact that the EPA contractor (Industry reply brief in Nos. 74-1261 etc. at App. F):

> "viewed the plant as having exemplary recycle (when the contractor's sheets do not mention recycle) and evaporation (in an area where precipitation is twice the evaporation rate)."

After mentioning other matters the letter said:

> "We hope that you will agree that the issues as to the record and the basis for the sodium silicate guidelines and standards of performance are matters better resolved by administrative than by judicial consideration."

We agree with counsel. The strained effort in the EPA brief to justify the agency actions leaves us in a state of extreme confusion. We have examined every record reference made by EPA. They are cryptic, mystic, and enigmatic. If there is to be any worthwhile judicial review of agency action, that action must be presented and supported in a manner capable of judicial understanding. It is enough to say that EPA has not shown that its technology is available, achievable, or demonstrated. The mandates of the Act have not been obeyed.

Sections 415.192, 415.193, and 415.195 are set aside and remanded for reconsideration.

**(10) Sulfuric Acid—40 C.F.R. Part 415, Subpart U.**

This subpart relates to discharges of pollutants from the production of sulfuric acid in single and double adsorption plants. The regulations provide for no discharge of pollutants by existing plants at both the 1977 (§ 415.212) and 1983 (§ 415.213) dates and by new sources (§ 415.215).

Industry objects to the inclusion of plants using certain processes. On January 31, 1975, EPA amended the applicability section (§ 415.210) of this subcategory. See 40 Fed. Reg. 5523. We are not told what is the effect of the amendment. Without this knowledge we cannot evaluate the regulations as they now read.

Also we have the problem of the definitions of "process waste water" and "process waste water pollutants." These are found in § 401.11(q) and (r) which we have set aside and remanded. EPA should assess the effect of the definitions on sulfuric acid plants. Because we do not know what will be the result of changed definitions on the no discharge requirements of §§ 415.212 and 415.213, those regulations are set aside and remanded for reconsideration.

Industry and EPA are in apparent agreement that single adsorption plants which are required to install tail gas scrubbers should not be held to the zero discharge requirement (Briefs in Nos. 74-1261 etc., EPA at 126 and Industry reply brief at 97). EPA says that such a plant would be entitled to a variance from the 1977 requirement and that the variance may be given by the permit issuer under the provision of § 415.212. Industry points out that the variance procedure is not applicable to the 1983 requirement. It would appear that the variance and review provisions of § 301(c) and (d) of the Act furnish adequate protection to Industry. Because EPA must reconsider the zero discharge provisions, it might be that the solution is to exclude the plants in question from regulation coverage. On remand EPA should consider this problem.



Industry raises two points in connection with the no discharge requirement for new sources. The first refers to the definition of process waste water which has been discussed in connection with other categories. With relation to sulfuric acid EPA concedes (Brief in Nos. 74-1296 etc. at 61) that "no discharge of contaminated cooling water is practicable for all plants at all times." The second relates to the EPA redefinition of the applicability of the sulfuric acid category. In this regard our statements in connection with existing sources apply also to new sources.

Sections 415.210, 415.212, 415.213, and 415.215 are set aside and remanded for reconsideration.

**(11) Titanium Dioxide—40 C.F.R. Part 415, Subpart V.**

This subpart originally related to discharges of pollutants from the production of titanium dioxide by the sulfate process and by the chloride process. For each process the regulations specify permissible discharges for all three steps. §§ 415.222, 415.223, and 415.225.

A 1975 amendment to the applicability clause, 40 Fed. Reg. 5523-24, removed applicability "to wastes resulting from discharges from production by processes in which beneficiation of raw ilmenite ore and chlorination are inseparably combined in the same process step." We understand that the amendment affects the chloride process and we are not told what will be its effect. Industry makes the reasonable request that the court remand the chloride process regulations insofar as they apply to "a process that combines beneficiation of low grade ilmenite ore and chlorination." Industry reply brief in Nos. 74-1261 etc. at 163. The request is granted.

With regard to the sulfate process, the charges and countercharges of the parties are more theatrical than informative. The discharge of pollutants from plants using the sulfate process presents a serious problem. This fact does not excuse EPA from failing to disclose and articulate, in an understandable manner, its course of inquiry, anal-

ysis and reasoning. EPA relies on after-the-fact rationalization and argument in its brief. The brief in turn places heavy reliance on, and six times cites for record support, "App. 2278." This is a reproduction of a document which was prepared by some undisclosed person and which contains penciled notes made by an unknown writer. The cryptic allusions mean nothing to us.

The technology used by EPA to justify its regulations is not shown to be in use at any plant, either existing or pilot. EPA's continued reference to the American Cyanamid plant is unimpressive. That plant is not using the technology on which EPA relies, and it intends to use a proprietary treatment process which it refuses to disclose because of a confidentiality agreement. EPA has not demonstrated that the technology claimed to support its regulations is either available, practicable, economically achievable, or demonstrated. In the circumstances it is not necessary to explore the lengthy, technical arguments of the parties relating to costs and energy requirements.

Sections 415.220, 415.222, 415.223, and 415.225 are each set aside and remanded for reconsideration.

## IV

The following regulations, all contained in 40 C.F.R., are severally set aside and remanded for reconsideration in the light of this opinion:

**General**

401.11(i)—Definition of "effluent limitation."

401.11(q)—Definition of "process waste water."

401.11(r)—Definition of "process waste water pollutants."

**Chlorine**

415.63—1983 step.



**Hydrochloric Acid**

415.72—1977 step.

415.73—1983 step.

415.75—New sources.

**Hydrofluoric Acid**

415.82—1977 step.

415.83—1983 step.

415.85—New sources.

**Hydrogen Peroxide**

415.93—1983 step.

415.95—New sources.

**Nitric Acid**

415.102—1977 step.

415.103—1983 step.

415.105—New sources.

**Sodium Carbonate**

415.152—1977 step.

415.153—1983 step.

415.155—New sources.

**Sodium Dichromate**

415.173—1983 step.

**Sodium Metal**

415.182—1977 step.

415.183—1983 step.

415.185—New sources.

**JUDGMENT**

# United States Court of Appeals

FOR THE FOURTH CIRCUIT

No. 74-1261

E. I. DUPONT DE NEMOURS & CO.,

*Petitioner,*

CHAMBER OF COMMERCE OF THE UNITED STATES OF AMERICA,

*Amicus Curiae.*

ALLEGHENY POWER SYSTEM, INC., ET AL,

*Amicus Curiae.*

NEW JERSEY ZINC COMPANY,

*Amicus Curiae.*

AMERICAN PETROLEUM INSTITUTE AND ELEVEN MEMBER COMPANIES. (ASHLAND OIL, INC.; CONTINENTAL OIL COMPANY; EXXON CORP.; GULF OIL CORP.; PHILLIPS PETROLEUM COMPANY; SHELL OIL CO.; STANDARD OIL CO. OF CALIFORNIA; STANDARD OIL CO. OF OHIO; SUN OIL CO. OF PENNSYLVANIA; TEXACO, INC.; UNION OIL OF CALIFORNIA)

*Amicus Curiae.*

RMI, INC.

*Amicus Curiae.*

versus

RUSSELL E. TRAIN, as Administrator, Environmental Protection Agency,

*Respondent.*

NATURAL RESOURCES DEFENSE COUNCIL,

*Amicus Curiae.*

**On Petition For Review Of An Order Of The Environmental Protection Agency**

THIS CAUSE *came on to be heard upon the petition of* E. I. duPONT de NEMOURS & Company, *for review of*

*an order issued against it by the Environmental Protection Agency on March 4, 1974; upon a certified list in lieu of a transcript of the record; and the said cause was argued by counsel.*

ON CONSIDERATION WHEREOF, *it is ordered, adjudged and decreed by the United States Court of Appeals for the Fourth Circuit, that the following regulations, all contained in 40 C.F.R., are severally set aside and remanded for reconsideration in light of this opinion.*

**General**

401.11(i)—Definition of "effluent limitation."

401.11(q)—Definition of "process waste water."

401.11(r)—Definition of "process waste water pollutants."

**Chlorine**

415.63—1983 step.

**Hydrochloric Acid**

415.72—1977 step.

415.73—1983 step.

415.75—New sources.

**Hydrofluoric Acid**

415.82—1977 step.

415.83—1983 step.

415.85—New sources.

**Hydrogen Peroxide**

415.93—1983 step.

415.95—New sources.

**Nitric Acid**

415.102—1977 step.

415.103—1983 step.

415.105—New sources.



**Sodium Carbonate**

415.152—1977 step.

415.153—1983 step.

415.155—New sources.

**Sodium Dichromate**

415.173—1983 step.

**Sodium Metal**

415.182—1977 step.

415.183—1983 step.

415.185—New sources.

**Sodium Silicate**

415.192—1977 step.

415.193—1983 step.

415.195—New sources.

**Sulfuric Acid**

415.210—Applicability.

415.212—1977 step.

415.213—1983 step.

415.215—New sources.

**Titanium Dioxide**

415.220—Applicability.

415.222—1977 step.

415.223—1983 step.

415.225—New sources.

/s/ WILLIAM K. SLATE, II
*Clerk*

# Supreme Court of the United States

No. 75-978

E. I. du Pont de Nemours and Company
*et al.*,

*Petitioners,*

v.

Russell E. Train, Administrator, Environmental
Protection Agency, *et al.*

Order Allowing Certiorari. Filed April 19, 1976

The petition herein for a writ of certiorari to the United States Court of Appeals for the Fourth Circuit is granted.



# Supreme Court of the United States

No. 75-1473

E. I. du Pont de Nemours and Company
*et al.*,

*Petitioners,*

v.

Russell E. Train, Administrator,
Environmental Protection Agency

Order Allowing Certiorari. Filed June 21, 1976

The petition herein for a writ of certiorari to the United States Court of Appeals for the Fourth Circuit is granted. The case is consolidated with No. 75-1705 and a total of one hour is allotted for oral argument. The case is set for oral argument in tandem with No. 75-978, E. I. du Pont de Nemours and Company v. Train.

# Supreme Court of the United States

No. 75-1705

RUSSELL E. TRAIN, Administrator,
Environmental Protection Agency,

*Petitioner,*

v.

E. I. DU PONT DE NEMOURS AND COMPANY
*et al.*

ORDER ALLOWING CERTIORARI. Filed June 21, 1976

The petition herein for a writ of certiorari to the United States Court of Appeals for the Fourth Circuit is granted. The case is consolidated with No. 75-1473 and a total of one hour is allotted for oral argument. The case is set for oral argument in tandem with No. 75-978, E. I. du Pont de Nemours and Company v. Train.